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GEORGIA BUSINESS AND
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Hartsfield Atlanta International Airport Gateway to Prosperity?

Elke Kespohl

Back in the 1830s Atlanta was founded as the southern terminus for the Western & Atlantic Railroad and it has been the transportation center of the Southeast ever since. Today, most of the activity takes place at the airport, with Hartsfield Atlanta International being the largest transfer hub in the world and, by 1986, the second busiest in terms of passenger movement and aircraft operations. Due to the rapid growth of air traffic at Hartsfield International, the Atlanta Regional Commission is presently undertaking a study to determine the region's aviation needs through the year 2010. Possible options being considered are the building of a second airport, expansion of Hartsfield International, or the opening of Dobbins Air Force Base to commercial air traffic.

Recently, much public discussion about Hartsfield International Airport focused on the unwelcomed increase in flight delays following the expansion in aircraft operations. While the importance of this problem should not be underestimated, public attention devoted to these negative effects has overshadowed the considerable economic impact of the airport on the Southeast and especially on Atlanta.

Located only ten miles from Atlanta's central business district, the airport covers a total area of 3,750 acres. The terminal complex includes two terminal buildings, one international concourse, and four domestic concourses connected by a 1.1-mile underground transit mall. The complex occupies 378 acres and is thus the world's largest passenger terminal. Construction was completed in 1980 at a cost of $500 million with another $250 million spent on roadway relocation, taxiways, and cargo and support facilities.

AIRPORT STATISTICS

Only 25 years ago, Atlanta was the 35th busiest airport in the continental U.S. in terms of passenger volume, and today it ranks as the second busiest in the world, surpassed only by Chicago's O'Hare. The accompanying table summarizes statistics for the four busiest airports in passenger movement in the U.S. The fifth airport, New York's John F. Kennedy Airport, was chosen because of its high ranking in cargo tonnage. In 1986, 45.2 million passengers passed through Atlanta's terminals which are able to handle at least 55 million passengers per year. Passenger volume through May 1987 was 4.5 percent above the same period in 1986, and takeoffs and landings have eclipsed last year's mark by more than 11 percent. Atlanta is also the busiest connecting point in the world; in 1986, about 31 million, or 70 percent, of the travelers passed through Atlanta in transit to other destinations. For the benefit of 1.4 million international passengers, four more gates were added to the international concourse at a cost of $16 million.

In addition to being second in terms of passenger movement, Atlanta also ranks second behind Chicago's O'Hare in aircraft operations. In 1986, a total of 778,151 flights were handled, of which 9,150 were international. This corresponds to approximately 2,157 takeoffs and landings per day. As the table reveals, during the first five months of 1987 Atlanta outpaced Chicago in terms of aircraft operations.

Equally as important as the steady rise in passengers and flight operations is the growing role of air cargo, especially that of international freight, on the Atlanta economy. Some of the world's largest cargo buildings are located in Atlanta. This includes a 457,000-square foot warehouse, operated by Delta Air Lines and built at a cost of $46 million, as well as a 215,000-square foot Eastern facility. Altogether, more than one million square feet of cargo handling space is available with expansion underway. During 1986, 325,100 tons of freight were shipped via Atlanta International. More than 21 percent of the total tonnage moved through the airport was international freight. In 1985, Atlanta ranked fifth nationwide and eighth in the world in total freight tonnage. Atlanta's cargo position is supported by the solid infrastructure that is representative of the metropolitan area. In addition to 60 available motor carriers, rail access is excellent, and the port of Savannah is only five hours away by interstate highways.

ECONOMIC IMPACT ON METRO ATLANTA

The operating statistics presented so far only begin the discussion of the substantial economic impact of the airport, however. In addition to these figures, several other indicators illustrate the extent of the economic effects attributed to the airport. The direct impact is relatively easy to assess, and the employment created by the airport, the total annual payroll, and the revenue collected by the airport give some clues to the magnitude of this direct impact. Yet, it is nearly impossible to capture the full range of the economic effects of Hartsfield International Airport on Atlanta's emergence as the financial, retail, cultural, and transportation center of the southeastern U.S. and as a truly international city.

The airport presently is the largest employment center in Georgia and one of the largest nongovernmental employment centers in the Southeast. In 1986, the airport had 36,800 employees. This figure includes employees of airlines, concessionaires, the Federal Aviation Administration, the City of Atlanta, and all airport tenants. The Bureau of Labor Statistics reports the number of employees in the total transportation sector for the Atlanta MSA was 835,200 in 1986. The airport alone accounts for 4.4 percent of these employees. According to the state's labor department, Hartsfield contributes about 3 percent of the 1.2 million employment in the transportation sector for Georgia. The recent acquisition of Western Airlines by Delta added more than 1,500 new employees to Hartsfield, expanding the on-airport job base to more than 38,000.

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In 1986, the total annual payroll amounted to more than $1.4 billion. After including direct purchases, capital improvements, and local taxes generated at the airport, this results in a direct economic effect of more than $2 billion. Total direct and indirect economic benefits of the airport are estimated to be $4.9 billion. Airport revenues collected from landing fees, concession revenues, and building and land rentals have been rising steadily from $88.5 million in 1984 to $104.6 million in 1985 and $107.4 million in 1986.

Unquestionably, the indirect economic impact of the airport is difficult to quantify but by no means less important. For example, in 1986, tourists brought in by planes spent $9 billion at the state's hotels, restaurants, shops, and attractions. More than half of this money was spent in metro Atlanta's Fulton, DeKalb, Cobb, Clayton, and Gwinnett counties. Of the 10 million annual visitors to Atlanta, about half are business and convention travelers. Among other things, the proximity of the airport to the central business district makes Atlanta a popular city for business meetings and conventions. In 1986, Atlanta hosted over 1,400 conventions and business meetings. Access to downtown Atlanta will be made even easier in June 1988, when the airport is scheduled to be connected directly with the MARTA rapid-rail system. This will reduce travel time to downtown Atlanta from 20 minutes to just 16 minutes.

But the airport does not only benefit the city by bringing in visitors, it also helps encourage investment by U.S. and foreign firms. More than 430 of the 500 largest U.S. corporations listed in *Fortune* are headquartered or maintain offices in Atlanta. The Atlanta Chamber of Commerce reported in a recent study that companies chose Atlanta over cities such as Chicago, Dallas, and New York because of the city's central location, the region's inexpensive land and low labor costs, the availability of skilled workers, the general quality of life, and the proximity to several respected universities. Availability of air service was frequently the key factor for this choice. Certainly, the airport helped to attract major corporations like RJR Nabisco which will move its corporate headquarters to Atlanta in the fall. The personnel relocating to Atlanta will consist mainly of top executives who may be expected to spend proportionately more money on housing, consumer goods and personal services. Also, these executives are expected to direct millions of dollars into local banking, accounting, legal and advertising services.

Hartsfield Atlanta International Airport always plays a critical role in attracting foreign and internationally

Operating Statistics for Selected Airports, 1986 and May 1987

	Aircraft Operations (Takeoffs and Landings)		Passengers		Freight and Express[1] (tons)	
City and Airport	1986	May 1987	1986	May 1987	1986	May 1987
Atlanta (William B. Hartsfield, Int'l.)	787,301	332,238	45,191,480	20,073,704	325,100	154,951
Chicago (O'Hare International)	795,026	332,214	54,770,673	23,943,515	631,249	278,793
Dallas-Ft. Worth (Dallas-Ft. Worth Regional)	575,936	249,998	39,945,326[+]	16,751,084[+]	179,384	72,321
Los Angeles (Los Angeles International)	579,081	272,846	41,417,867	18,035,834	865,862	392,806
New York (John F. Kennedy Int'l.)	279,400	87,500[*]	27,224,000	8,752,000[*]	1,095,500[*]	368,000[*]

[*] May 1987 data were not available for John F. Kennedy International so April data were used.

[+] The only available figures for Dallas-Ft. Worth Regional were enplaned passengers. These figures were doubled to obtain the total number of passengers.

[1] Does not include mail.

oriented businesses to the area. The latest Economic Activity Report published by the airport points out that based on figures from the U.S. Department of Commerce in the decade ending in 1983, foreign investment boosted Georgia's employment growth by 50 percent over that of the Southeast as a whole and nearly twice that of the national growth rate. The number of employees of nonbank U.S. affiliates peaked at 106,999 in 1986. Today, the city is home to about 650 international firms, 33 foreign consulates, and 35 foreign and U.S. Edge Act banks. Many major companies have moved here since 1978, when new international air routes first came to Hartsfield Atlanta International Airport. More than 1,100 departures daily to 165 cities in the U.S., and twelve carriers connecting Atlanta nonstop with points in Europe, Mexico, Bermuda, the Caribbean, and the Far East provide easy access to the total U.S. market for foreign companies and access to foreign markets for domestic businesses. These figures confirm the fact that the airport is still the key factor for Atlanta's growth and prosperity.

The author thanks John R. Braden, the airport's director of public relations, for his cooperation in providing the data for Hartsfield International Airport.

Urban-Rural Distribution of New Manufacturing Industry Locations in Georgia, 1980-1985

Kevin T. McNamara

The Georgia economy has grown considerably during the first half of the 1980s. Total employment for the state increased by 469,100 jobs, or 21.9 percent from June 1980 through June 1986. Manufacturing employment, which accounted for 6.7 percent of the total state employment growth between 1980 and 1986, is an important component of economic growth because of the indirect and induced employment that results from it. This occurs as existing manufacturing firms and service industries expand their capacities in response to the new or increased demand stimulated by the increase in manufacturing activity.

Manufacturing industry plant locations provide another means of examining expansion of the manufacturing sector of the state's economy. The distribution of new plant locations across the state measures the relative competitiveness of localities in attracting new manufacturing firms. This article is an analysis of plant locations in the state. The data were compiled by the Georgia Department of Industry and Trade. The reader should be aware, however, that the numbers are based on public announcements of new industry locations and may not include all new locations. Also, there is no verification of actual establishment of announced firms, so some reported firm locations may not have occurred. Finally, all employment figures are projections.

URBAN DISTRIBUTION

The accompanying map shows the reported new manufacturing industry locations across the state. The heavier concentrations of new locations are clustered in and around metropolitan counties. Four of the five counties with more than 20 reported new manufacturing industry locations are in the Atlanta metropolitan statistical area (MSA). The fifth, Coffee County, is a nonmetropolitan county. The two localities with 16 to 20 location announcements are both in the northern portion of the state. Of the six counties with 11 to 15 reported locations, one, Muscogee County, is in a MSA. The other five counties in this group are nonmetropolitan counties, but are geographically close to either the Atlanta or Chattanooga MSAs. All are above the fall line.

The dense clustering suggests metropolitan areas have an advantage in attracting new manufacturing industry. Of the 599 statewide reported locations between 1980 and 1985, just under half were in the state's metropolitan counties (Table 1). The 18 counties in the Atlanta MSA accounted for 208 reported announcements, 35 percent of the Georgia total. The Athens, Columbus, and Macon MSAs had 15, 12, and 19 reported locations, respectively. The three other MSAs had under ten reported locations, with the Albany area accounting for only two reported locations.

Georgia's MSAs include 38, or 23 percent, of the state's counties. These counties accounted for 47 percent of the total statewide reported locations. Sixty-three percent of the state's population lives in these seven MSAs, however. The 121 nonmetropolitan counties, 77 percent of the total, accounted for 316, or 53 percent, of the reported new industry locations. The remaining 37 percent of the state's population lives in these counties.

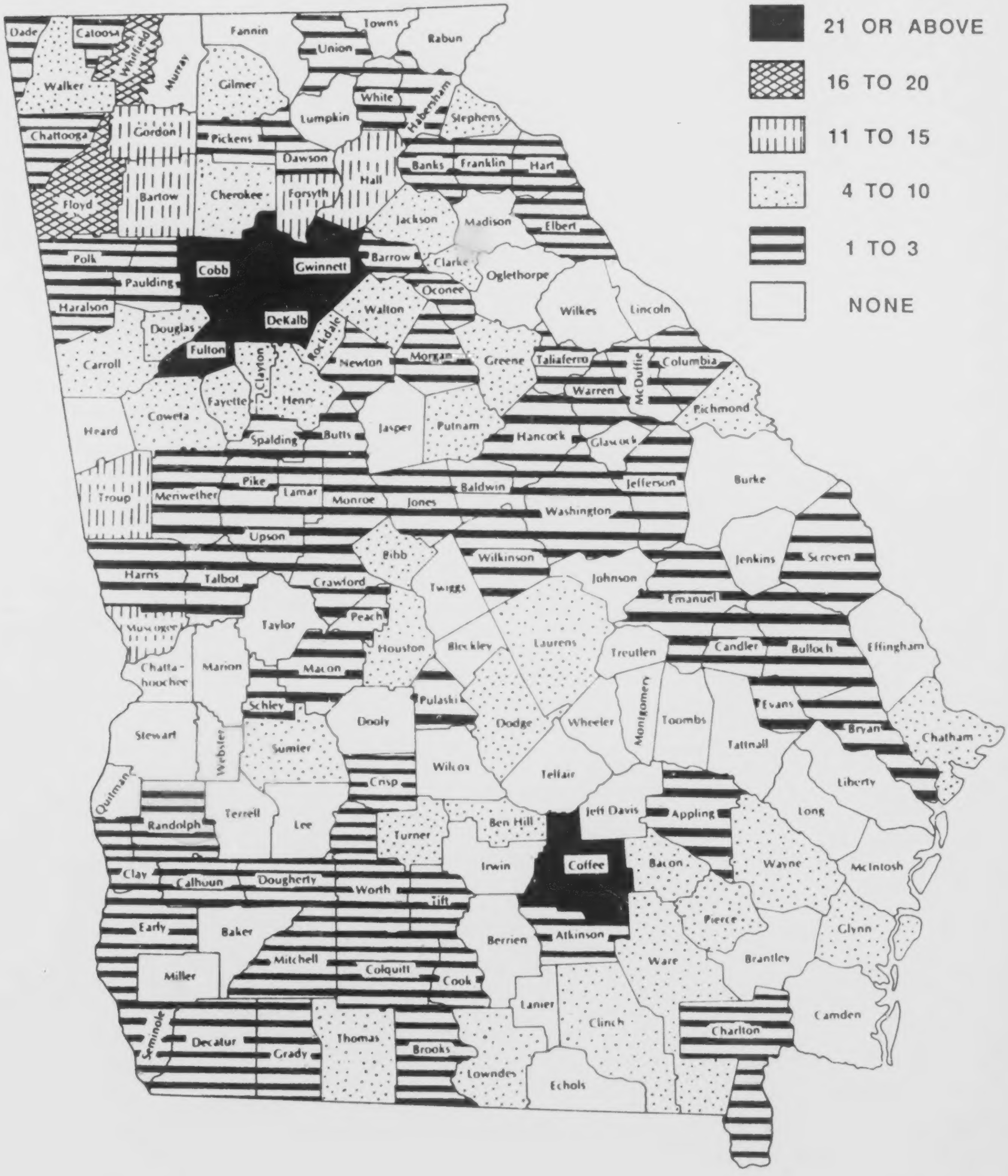
RURAL DISTRIBUTION

As the map indicates, the 319 reported locations in the nonmetrpolitan counties of Georgia are not uniformly distributed across the rural areas. Table 2 lists nine nonmetropolitan counties that had ten or more reported new manufacturing industry locations from 1980 to 1985. Two of the nonmetropolitan counties are in south Georgia. Coffee County, the only county outside of the Atlanta MSA with more than 20 reported locations, is approximately 90 miles from Albany, the nearest MSA. The other south Georgia county with more than ten locations, Thomas County, is 50 miles south of Albany. The other seven nonmetropolitan counties with ten or more reported locations are in north Georgia. All are in proximity to the Atlanta MSA and either Columbus or Chattanooga.

The 131 reported locations in the nine nonmetropolitan

ANNOUNCED NEW MANUFACTURING PLANT LOCATIONS

1980-1985


21 OR ABOVE
16 TO 20
11 TO 15
4 TO 10
1 TO 3
NONE
Dade
Catoosa
Whitfield
Murray
Fannin
Towns
Union
Rabun
Walker
Gilmer
White
Lumpkin
Habersham
Stephens
Chattooga
Gordon
Pickens
Dawson
Banks
Franklin
Hart
Floyd
Bartow
Cherokee
Forsyth
Hall
Jackson
Madison
Elbert
Polk
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Paulding
Oconee
Haralson
Walton
Wilkes
Lincoln
Douglas
DeKalb
Rockdale
Fulton
Carroll
Clayton
Newton
Morgan
Greene
Taliaferro
McDuffie
Columbia
Warren
Coweta
Fayette
Henry
Richmond
Heard
Jasper
Putnam
Hancock
Glascock
Spalding
Butts
Burke
Troup
Meriwether
Pike
Lamar
Monroe
Jones
Baldwin
Jefferson
Washington
Upson
Bibb
Wilkinson
Jenkins
Screven
Harris
Talbot
Crawford
Twiggs
Johnson
Emanuel
Muscogee
Taylor
Peach
Houston
Bleckley
Laurens
Treutlen
Candler
Bulloch
Effingham
Chattahoochee
Marion
Macon
Pulaski
Schley
Dooly
Dodge
Wheeler
Montgomery
Toombs
Evans
Tattnall
Stewart
Webster
Sumter
Bryan
Chatham
Wilcox
Telfair
Crisp
Quitman
Randolph
Terrell
Lee
Turner
Ben Hill
Jeff Davis
Appling
Liberty
Long
Irwin
Coffee
Bacon
Wayne
McIntosh
Clay
Calhoun
Dougherty
Worth
Tift
Early
Baker
Berrien
Atkinson
Pierce
Glynn
Ware
Brantley
Mitchell
Colquitt
Cook
Miller
Lanier
Clinch
Camden
Seminole
Decatur
Grady
Thomas
Brooks
Lowndes
Echols
Charlton

Source: Compiled by author from New and Expanded Manufacturing Industries Reported, by County, 1980-1985, Georgia Department of Industry and Trade.

Table 1

Reported New Manufacturing Industry by Metropolitan, Nonmetropolitan, and MSA Locations, 1980-1985

Area	Number of Locations	Percentage of Total*
Georgia	599	100
Metropolitan (38 counties)	280	47
Nonmetropolitan (121 counties)	319	53
MSAs		
Albany	2	0
Athens	15	3
Atlanta	208	35
Augusta	9	2
Columbus	12	2
Macon	19	3
Savannah	8	1

* Rounded to nearest percentile.

Source: Compiled by author from *New and Expanded Manufacturing Industries Reported, by County, 1980-1985*, Georgia Department of Industry and Trade.

Table 2

Nonmetropolitan Counties with Ten or More Reported New Manufacturing Industry Locations, 1980-1985

Area	Number of Locations	Percent of Total Nonmetropolitan*
Nonmetropolitan	319	100
Total of Nine Counties	131**	41
Bartow	15	5
Carroll	10	3
Coffee	22	7
Floyd	16	5
Gordon	11	3
Hall	15	5
Thomas	10	3
Troup	15	5
Whitfield	17	5

* Rounded to nearest percentile.

** 22 percent of total Georgia locations.

Source: Compiled by author from *New and Expanded Manufacturing Industries Reported, by County, 1980-1985*, Georgia Department of Industry and Trade.

counties account for 41 percent of the reported locations in all nonmetropolitan counties. Those reported locations represent 22 percent of the state's total.

The metropolitan counties and nonmetropolitan counties with ten or more reported locations represent 47 of Georgia's counties (30 percent). These counties accounted for 69 percent of the state's reported new manufacturing industry locations.

The distribution of reported manufacturing industry locations indicates that most MSAs and several nonmetropolitan counties offers attractive locations for new industry. Most of these areas are clustered around the Atlanta MSA.

Although several nonmetropolitan counties had a relatively high number of reported locations, the majority had few or none. South Georgia on average did not account for as many reported new locations as north Georgia. Only one of its MSAs and two nonmetropolitan counties had ten or more reported locations. Thirty-two south Georgia counties did not have any reported locations

Table 3

Projected New Employment for Reported New Manufacturing Industry Locations, 1980-1985

Area	Projected Employment	Employment as a Percent of Total
Georgia	39,473	100*
Metropolitan (38 counties)	18,935	48
Nonmetropolitan (121 counties)	20,538	52
MSAs		
Albany	65	0
Athens	1,685	4
Atlanta	11,415	29
Augusta	1,424	4
Columbus	1,478	4
Macon	1,802	5
Savannah	461	1

* Rounded to nearest percentile.

Source: Compiled by author from *New and Expanded Manufacturing Industries Reported, by County, 1980-1985*, Georgia Department of Industry and Trade.

Table 4

Projected New Employment for Nonmetropolitan Counties with Ten or More Reported New Industry Locations, 1980-1985

Area	Projected Employment	Employment as a Percent of Total
Nonmetropolitan	20,538	100
Total of Nine Counties	8,848**	43
Bartow	613	3
Carroll	511	2
Coffee	1,521	7
Floyd	1,290	6
Gordon	1,719	8
Hall	1,690	8
Thomas	411	2
Troup	1,988	10
Whitfield	626	3

* Rounded to nearest percentile.

** 22 percent of total Georgia projected employment from new industry locations.

Source: Compiled by author from *New and Expanded Manufacturing Industries Reported, by County, 1980-1985*, Georgia Department of Industry and Trade.

compared to eleven counties in north Georgia. Statewide, 112 counties had three or fewer reported locations over the six-year period.

Announced locations in MSA counties accounted for 48 percent (18,935 jobs) of the total projected employment associated with new firm locations (Table 3). This percentage reflects a MSA projected employment share that matches its location share. Employment shares for individual MSAs are similar to their location shares. The Atlanta MSA, however, accounts for a 6 percent smaller share of employment that is distributed across the Athens, Augusta, Columbus, and Macon MSAs.

The nine nonmetropolitan counties with 10 or more locations (Table 4) accounted for 43 percent of the nonmetropolitan projected employment, slightly greater than their 41 percent of locations. Comparison of projected employment and locations shares in the nine counties, however, indicates differences. Although plant locations do not measure the distribution of employment growth in nonmetropolitan counties, they do indicate which counties will have the highest employment growth. Only four of the 112 nonmetropolitan counties with fewer than ten announced locations have projected employment gains greater than 400 jobs (Ben Hill, 640; Stephens, 405; Sumter, 502; and Warren, 630).

Location data for 1986 indicate continued MSA location strength. Eighty (49 percent) of the 163 reported new Georgia locations were in MSA counties. One hundred and twenty-one (74 percent) were in north Georgia. The Atlanta MSA had 34 percent of all statewide reported locations compared with the 35 percent it had during the 1980-85 period. The nine nonmetropolitan counties with more than nine announced locations over the 1980-85 period had 31 reported locations (19 percent), slightly lower than their 22 percent in the earlier period.

SOME CONCLUSIONS

Georgia is successful in attracting new manufacturing industries, averaging over 100 announced locations per year since 1980. The distribution strongly favors the MSAs and the nonmetropolitan counties adjacent to the Atlanta MSA. South Georgia reported fewer new locations than north Georgia with three times as many south Georgia counties accounting for no reported locations. High location counties also are the ones with high projected new employment. The location data for 1986 show a continuation of the MSA strength in locations, especially in the Atlanta MSA. North Georgia's share also continued to be strong, accounting for almost 75 percent of all locations. These results suggest that the MSAs and the nonmetropolitan counties adjacent to the Atlanta MSA have a comparative advantage over other counties in attracting new industry.

Coffee and Thomas counties, the only two nonmetropolitan counties in south Georgia with more than ten locations from 1980 to 1985, had four and three locations in 1986, respectively, to lead south Georgia in locations. The announced locations in these counties represented a broad mix of industry types. Understanding the success of these counties in industrial recruitment would provide insight into the potential of other south Georgia counties to attract industry. It also could suggest cost effective strategies for investments to stimulate growth in nonmetropolitan counties.

Kevin T. McNamara is assistant professor and rural development economist in the Institute of Community and Area Development and Department of Agricultural Economics, University of Georgia.

Fourth in a
continuing series

Regional Economic Conditions

Hugh Nourse and John Drye

Southwest Piedmont Region

The southwest piedmont region borders the metropolitan Atlanta, Columbus, and Macon areas. Composed of eleven counties, including Haralson, Carroll, Heard, Lamar, Marion, Meriweather, Pike, Talbot, Taylor, Troup, and Upson, the region encompasses the cities of Carrollton, Bowden, Bremen, LaGrange, Thomaston, and Talbotton. West Georgia College also is in this region.

As Table 1 points out, the southwest piedmont's industrial base is a conglomerate of many industries. Although the food, textile, apparel, lumber, printing, primary metal, fabricated metal, non-electrical machinery, and electronic equipment industries all have plants here, the lumber and wood products industry's 103 plants makes it predominant.

Five of the major industries (food, textiles, apparel, primary metals, and fabricated metals) have experienced a decline or a slight increase in statewide employment between 1980 and 1986. The two hardest hit were the textiles and apparel industries which suffered employment declines of 12.8 percent and 1.8 percent respectively between 1980 and 1986. These industries are concentrated in Haralson, Upson, and Lamar counties. The largest textile and apparel manufacturing plants are the Sewell Plant located in Haralson County, Bremen-Bowden in

Table 1

Southwest Piedmont
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
	1-19	20-99	100-249	Over 250	Total
Food & kindred products	10	3	2	1	16
Tobacco manufactures	0	0	0	0	0
Textile mill products	11	11	10	16	48
Apparel & other textile products	8	16	10	14	48
Lumber & wood products	94	6	2	1	103
Furniture & fixtures	4	3	2	0	9
Paper & allied products	0	1	2	0	3
Printing & publishing	21	12	0	0	33
Chemicals & allied products	3	1	0	0	4
Petroleum & coal products	3	0	0	0	3
Rubber & misc. plastics products	1	4	3	0	8
Leather & leather products	0	0	1	0	1
Stone, clay, and glass products	11	4	0	0	15
Primary metal industries	0	0	2	3	5
Fabricated metal products	10	6	4	1	21
Machinery, except electrical	20	4	1	2	27
Electric & electronic equipment	4	0	2	2	8
Transportation equipment	1	2	0	0	3
Instruments & related products	1	0	0	0	1
Misc. manufacturing industries	2	2	0	1	5
Total number of plants	204	75	41	41	361

Source: U.S. Department of Commerce, *Census of Manufacturing*, 1982.

Carroll County, West-Point Pepperell in Troup County, and William Carter in Lamar County. Between 1980 and 1986, the food, primary metals, and fabricated metals industries experienced a very slow growth in employment throughout the state, gaining only 3 percent, 4.9 percent and .9 percent, respectively. The largest primary metal plant in the region is the Southwire plant in Carroll County.

Conversely, industries which have experienced a strong growth in statewide employment between 1980 and 1986 are the lumber, non-electrical machinery, and electrical machinery industries. Over the six years, these industries expanded by a respective 22.3 percent, 15.5 percent, and 36.3 percent. If the statewide growth rates for these industries are representative, then one would expect significant economic growth for this region in the future.

The unemployment rate averaged 8.3 percent between 1981 and 1985 compared to 6.8 percent for the state as a whole (Table 2). The recession during the early 1980s had its greatest impact on the region in 1982 when the unemployment rate jumped to 9.9 percent. Following 1982, the unemployment rate declined for two consecutive years, falling to 8.6 percent in 1983 and 7.4 percent in 1984. This decline was short lived, however, as the unemployment rate increased to 8.4 percent during 1985. The civilian labor force grew at a 1.8 percent compounded rate between 1981 and 1985, as compared to a 2.5 percent growth rate for the state as a whole.

Though high interest rates curtailed growth in 1981 and 1982, residential construction in the region rebounded in the following years (Table 3). The growth rate for total residential units built during this period was 19.2 percent. In 1984, the construction level of residential units remained virtually unchanged from 1983's levels. In 1985, however, total residential construction increased 51 percent or by approximately 2,000 units.

During 1980 through 1985, nonresidential construction in the southwest piedmont was dominated by industrial construction. During this period, the level of industrial construction exceeded that of retail store construction and professional building construction every year. Still, industrial construction was very cyclical. The high interest rates during 1981 and 1982 depressed the level of industrial construction to its lowest level for the period. Following 1982, industrial construction expanded for two consecutive years, peaking in 1984 with an approximate value of $24 million.

Table 2

Civilian Labor Force
Southwest Piedmont

Year	Employed	Unemployed	Total
1980	91,174	7,206	98,380
1981	93,813	7,186	100,999
1982	94,613	10,400	105,013
1983	95,251	8,916	104,167
1984	97,239	7,715	104,954
1985	98,209	9,067	107,276
1986	100,785	8,112	108,897

Source: Georgia Department of Labor, Labor Information System.

Office, bank, and professional buildings construction remained stable during 1980 through 1985. Over this period, the value of professional building construction ranged from a low of $743 thousand in 1981 to a high of $4.6 million in 1985. The overall low level of professional buildings construction in this region could be associated with the extremely high level of professional buildings construction in Atlanta at that time.

The level of retail store construction also was very stable. Between 1980 and 1984, retail store construction values ranged from a low of $1.6 million in 1982 to a high of $2.9 million in 1984. In 1985, retail store construction values tripled to $6.5 million. Overall, the sharp increases in the levels of both professional buildings construction and retail store construction provide a positive outlook for economic growth in this region.

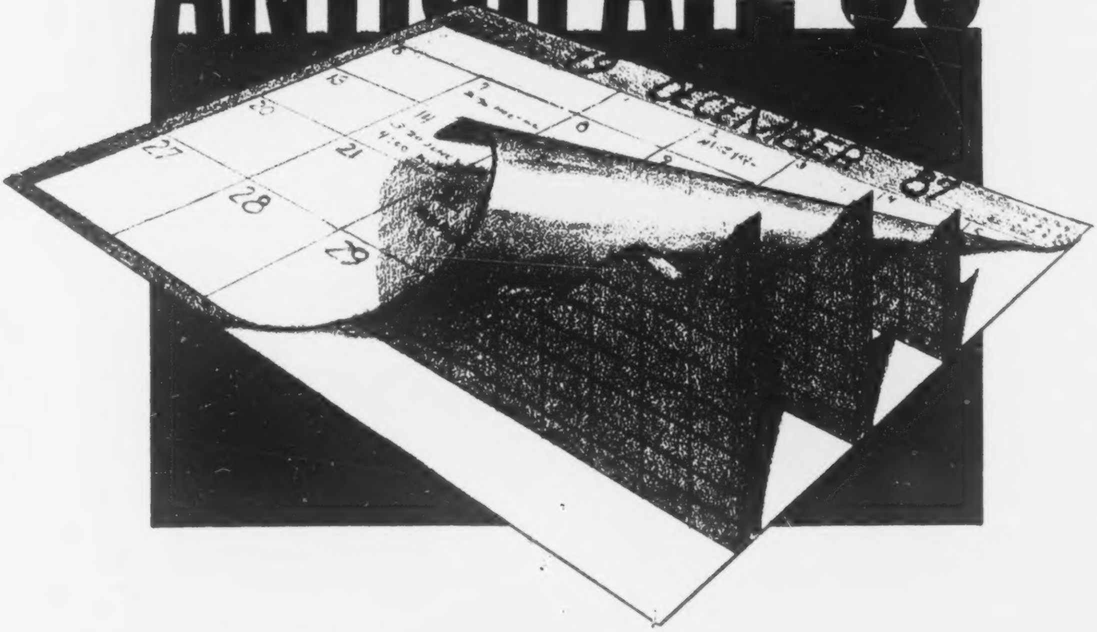
Table 3

Building Permits
Southwest Piedmont

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	744	982	$12,245,750	$1,380,650	$1,691,503
1981	629	812	5,041,657	742,728	2,781,667
1982	655	909	3,506,351	857,500	1,611,400
1983	862	1,396	15,090,736	1,450,863	2,014,045
1984	857	1,318	23,737,213	1,421,169	2,993,898
1985	1,281	1,984	10,770,017	4,558,345	6,478,872
Total	5,028	7,401	$70,391,724	$10,411,255	$17,571,385

Source: U.S. Department of Commerce, Bureau of the Census.

ANTICIPATE '88



What's ahead for the Georgia economy in 1988?

The 1988 GEORGIA ECONOMIC OUTLOOK is the major annual forecast for the state and individual segments of the Georgia economy. The OUTLOOK highlights trends in agriculture, manufacturing, construction, public utilities, services, government revenues and financial markets.

Produced by the Georgia Economic Forecasting Project at the University of Georgia, the 1988 OUTLOOK is useful to business leaders, government officials, and other decision makers who promote Georgia's economic development.

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GEORGIA BUSINESS STATISTICS

SERIES	JULY 1987	JUNE 1987	MAY 1987	JULY 1986
Georgia Leading Indicators Index[1] (1969=100)	180.82	177.46	175.86	170.76
Georgia Coincident Indicators Index[2] (1969=100)	541.56	536.40	535.48	502.53
Nonagricultural Employment[2] (thousands)	2747.1	2757.4	2752.6	2672.7
Manufacturing Employment[2] (thousands)	568.0	571.0	569.0	556.3
Average Weekly Earnings, Manufacturing[2] (dollars)	350.27	351.50	349.02	335.30
Help Wanted Advertising, Atlanta Index[3] (1967=100)	279	277	259	274
Taxable Retail Sales[4] ($ millions)	3376.0	3680.4	3677.1	3082.3
Building Permits[5]				
Residential Housing Units, Private (thousands)	5.8	7.0	5.3	5.9
Value of Residential Housing ($ thousands)	324932	355824	291785	302791
Value of Nonresidential Construction ($ thousands)	229028	220179[P]	240338	224646[P]
Industrial Buildings	30008	12928	16931	32754
Office, Bank and Other Professional Buildings	27489	20123	58672	47248
Stores and Other Mercantile Buildings	55242	49593	52350	44408
Other	116289	137535	112385	100236
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (December 1977 = 100)	182.6	182.1	181.4	173.8[a]
South/Population more than 1,200,000[a]	183.3	182.6	182.0	–
South/Population 450,000 - 1,200,000[a]	184.1	183.7	183.2	–
South/Population 50,000 - 450,000[a]	181.4	180.8	179.8	–
South/Population Less than 50,000[a]	179.9	179.1	178.9	–
Atlanta (1967=100)[b]	–	348.2	–	336.5[b]
Prices Received by Farmers, Georgia Index[7] (1977=100)	125	126	126	134
	1987:I	1986:IV	1986:III	1986:I
Total Personal Income[8] ($ millions)	83631	82189	81259	79391

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[P] Preliminary; imputation greater than 25 percent.

[a] Group size revised as of January 1, 1987; 1986 data are for June.

[b] Atlanta index is average of first 6 months of the calendar year (Jan. - June, 1986 and 1987).

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GEORGIA BUSINESS AND
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November-December 1987
Volume 47, number 6

Economic Development: New Roles and Resources for Universities

Marie Dent

Development of commercial applications in the biosciences, particularly biotechnology, could contribute significantly to long-term economic growth in Georgia. Previously, many university-industry partnerships focused on microelectronics; however, the knowledge base created in the last ten years with the advances in biotechnology provides universities and states with additional economic assets. This two-part article will explore various applications of biotechnology, its potential impact, Georgia's biotechnology-related resources, and the effects that commercialization of these resources can have on the state's economic future.

Over the past ten years, the commercial potential offered by the biosciences, particularly biotechnology, has spawned the development of at least 150 entrepreneurial firms and sparked increased scientific activity in products and processes that may profoundly shape the future. Commercial applications in the biosciences use living organisms or biological processes to yield commercially desirable products. Biotechnology refers to biological processes altered by cell fusion or genetic engineering. Although the use of biological organisms to produce commercial products is not new, advances in molecular biology have revolutionized its potential impact. Recombinant DNA, monoclonal antibodies, and bioprocess technologies enable new ventures to use microbes as factories, monoclonal antibodies as highly specific therapeutic and diagnostic agents, and industrial bioprocesses as the manufacturing tools for high value-added products and chemical feedstocks.

The bioindustrial revolution holds promises and challenges for those with the skills, resources and foresight to seize them. Sales predictions for bioindustrial products in the year 2000 range from $2 billion to $100 billion, depending upon how broadly one defines biotechnology.

Georgia's climate, land area, location, geography, and natural resources suit the growth and development of biotechnology related industries. In addition to possessing the largest underground aquifer in the United States, Georgia ranks third in the nation in the number of different soil types found in the state. Ample rainfall and a growing season of 230 to 250 days each year contribute to its ranking seventeenth in the nation in food production, with more than $3 billion in cash receipts yearly. Over 25 million acres of forest land contribute to its national position as second in the growth of timber, and first in pulpwood, paperboard, and naval stores production. In addition, Georgia's transportation systems, including one of the world's busiest airports and two deep-water ports, and its position in international trade and banking, place the state in a strategic position to produce and deliver food, fiber, medical products, and chemical feedstocks to a growing world population.

WHAT IS BIOTECHNOLOGY?

The genetic engineering technologies that have sparked the revolution of the past few years encompass several molecular biology techniques and methodologies. Principally, these technologies include recombinant DNA, monoclonal antibodies, and bioprocesses.

Recombinant DNA

All cells contain DNA (deoxyribonucleic acid) which specifies their genetic heritage. The technique of isolating DNA molecules and inserting them into the DNA of another cell ("recombining" the DNA) forms the cornerstone of genetic engineering. Genetic engineering, or genetic manipulation, changes the existing genetic information of an organism to allow for the production and generation of commercially valuable products which previously were not associated with that organism. For example, scientists have changed the genetic makeup of a bacterium so that it produces human insulin in large quantities. The technique may eventually allow the transfer of certain desirable physiological traits, such as herbicide resistance, to be imparted to crops which normally do not contain these characteristics.

Monoclonal Antibodies

Antibodies compose the body's immune system, which allows it to fight foreign substances. Antibodies recognize and bind specifically to particular foreign substances, or antigens. The production of a highly specific and purified antibody, derived from a single or monoclonal cell line and recognizable by only one type of antigen, allows scientists to develop effective and specific means of fighting disease processes. This same specificity also facilitates the diagnosis and monitoring of particular drug levels, pregnancies, sexually-transmitted diseases, hepatitis, and cancer.

Bioprocesses

Although living organisms have been used for thousands of years to produce bread, alcohol, cheese, and other foods, the need for certain antibiotics and chemicals in the 1940s and 1950s contributed to an increased use of these bioprocesses for industrial and medical purposes. Genetic engineering provides new components such as chemical feedstocks and utilizes new raw materials to improve production and subsequent yields.

GEORGIA BUSINESS AND ECONOMIC CONDITIONS

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BIOTECHNOLOGY'S IMPACT ON GEORGIA

The pervasiveness of biotechnology into every aspect of daily life and the varying definitions given it often lead to conflicting projections of the effect biotechnology will have on our economy and personal lives. But most agree that the impact will be massive.

Agriculture

Over the long term, biotechnology promises to change the structure and outputs of agriculture. Despite the gains and impressive productivity of American agriculture, the system continues to be plagued with problems which may be corrected by the intervention of biotechnology. For example, in Georgia, during 1985, frost damage to the Vidalia onion crop approximated $15 million. In the same year, 50 percent of the peach crop and 20 percent of containerized nursery stock sustained damage from the cold weather. During 1986, farmers experienced decreases in yields per acre of 75 percent and 70 percent in the production of peanuts and corn, respectively. Some of these reductions are attributable to the drought conditions during that time. Damage to Georgia's peanut crop from insects reached $8.8 million in 1984, in spite of $7.8 million spent in an attempt to control insects. In addition, production costs continue to rise. Currently these costs nationwide include $7.4 billion for fertilizer, $4 billion for pesticides, and $9.8 billion for farm machinery. Production inputs also have increased; the average amount of fertilizer used on corn acreage has increased from about 20 pounds per acre to 100 pounds per acre.

These farming problems create potential areas for agricultural research in the biosciences which might lead to improved production efficiency and profitability. Potentially, scientists may be able to develop crops with resistance to cold, heat, drought and other environmental conditions; develop plants with enhanced nutritional value; develop crops that more efficiently mine and use soil nutrients; develop crops resistant to insecticides or herbicides; and introduce microbes into crops to provide natural protection from insects or pests. Potential advantages for industry include development of crops with specific characteristics that reduce processing costs or meet certain market demands: tomatoes with lower water content, stringless celery that stays crisp for several weeks, or plants with specific taste or nutrient content.

In animal agriculture, biotechnology may allow the development of livestock and poultry that consume no more feed than today's animals, yet produce greater quantities of lean meat, eggs, and milk with lower cholesterol and butterfat content. In addition, the availability of techniques such as embryo transfer, storage, and selection that speed genetic improvements in livestock supplement traditional methods of breeding.

Health

The first marketable biotechnology products already affect human health. Diagnostic kits for pregnancy and AIDS have found their niche in the market, as have insulin and growth hormone produced through recombinant DNA methods. The increased availability and supply of interferon have reduced the cost of some cancer treatments from $1,000 to $30 per day. Most recently, tissue plasminogen activator, TPA, was so effective in dissolving blood clots that during clinical trials the National Institutes of Health decreed no heart attack patient in the study should be deprived of the drug. It has been suggested that monoclonal "magic tracer bullets" may be able to detect and combat certain types of cancerous tumors, thus reducing the massive shotgun doses of radiation previously required in some cases. In addition, biotechnology provides for the screening and detection of certain genetic diseases and eventually may provide gene replacement therapy for the treatment of these diseases.

Chemicals

The chemical industry produces $50 billion worth of chemicals each year, with all but a small portion of that amount derived from petroleum. The technical feasibility of petrochemical production through biotechnology is not in question. The price of crude oil, however, greatly influences the profitability of the biosynthesis of petrochemicals and at current oil prices petrochemicals produced biosynthetically cannot compete cost-wise. Greater interest in biosynthesis of petroleum-based chemicals will be expressed when it becomes necessary to offset higher oil prices or disruptions of oil supplies. In addition, the ability of scientists to create enzymes with certain catalytic activity, enhanced specificity, and in amounts needed for chemical reactions eventually will result in the production of high value, specialty, and pharmaceutical products.

Renewable Energy Resources

Three general arenas of energy have potential significance, depending on the price and supply of oil: energy crops, octane enhancers, and oil recovery methods. Georgia's forest resources, a favorable climate for producing other crops, and the possible introduction of new, genetically-engineered crops provide the state abundant renewable resources. While it is doubtful that using renewable resources as petroleum substitutes will occur in the near future, renewable resources to produce ethanol and methanol for use as octane enhancers is more viable. Biotechnology has enhanced oil recovery methods by producing organisms which reduce oil viscosity, increase the pressure in oil wells, or loosen oil from sand and rock and suspend it in water to facilitate its recovery. The use of genetically engineered organisms to extract such minerals as copper, arsenic, cobalt, and lead, particularly from waste dumps and mining sites, also will gain importance as the world depletes its mineral stores.

Environment

Biotechnology also offers new possibilities for protecting the environment. The chemical industry spends $1 billion to prevent pollution and millions more to clean up toxic materials; market estimates for treating municipal wastes reach the tens of billions of dollars. The effective application of biotechnology to biological waste material such as municipal wastes produces ethanol, methanol, and methane to meet some energy needs while detoxifying wastes. Additionally, scientists' potential ability to produce organisms that act on specific pollutants could result in long-term savings, both financially and environmentally, to the pulp and paper industry in Georgia. Ironically, the deterrent to using these microorganisms in pollution control results from the very reason they can be useful -- the fear of contaminating the environment. This area of concern raises another issue -- environmental monitoring of genetically engineered organisms.

BASIC RESEARCH

Perhaps the single, most far-reaching impact of biotechnology will be improved capabilities in basic research itself. The active pursuit of molecular genetics, gene regulation, and cell differentiation and development, can be expected to have serendipitous consequences which could be just as revolutionary in scope as the emerging revolution in biotechnology. The most unexpected areas of basic research often lead to discoveries of commercial relevance. The vast industrial impact of biotechnology sprang from basic research, and continues to do so.

The profound effect that these new biotechnologies will have on our state and national economy barely can be discerned now. It seems clear, however, that biotechnology has the potential to encourage a renewable economy to meet the food, fiber, fuel, and health demands of a growing world population. Georgia already has invested heavily to increase the quality of education and research in its universities; the complementary strengths of various public and private institutions endow the state with wide capabilities to capture a significant number of federal research dollars with which to enhance its efforts to attract high technology industrial development.

Marie Dent is a doctoral candidate in the College of Business at the University of Georgia.

In Part 2 of this article, which will appear in the next issue, the author will describe the state's university-based biotech resources and detail the impact of biotechnology on the state's economy.

Perspectives on Recent Georgia Population Growth Trends

Charles F. Floyd

Since population movements usually mirror changes in regional economic opportunities, Georgia county population estimates for 1980 to 1986, recently released by the Census Bureau, provide intriguing insights into the state's recent economic growth trends.

Georgia's population grew 11.7 percent between 1980 and 1986, compared to only 6.6 percent for the United States as a whole, but this relatively rapid overall growth rate for the state masked great regional differences. The explanation was heavily concentrated in a few areas, particularly in the eighteen-county Atlanta metropolitan statistical area, which experienced a 19.7 percent rate of population growth between 1980 and 1986 (Table 1), and captured almost two-thirds of the state's total population increase for the period. Three of the area's counties, Gwinnett, Fayette, and Cherokee, were among the fastest growing in the nation.

The picture was quite different in most of the remainder of the state. Georgia's eight other metropolitan areas grew at an overall rate of 7.6 percent, slightly more than one-third the average for the Atlanta MSA, and only the Augusta MSA grew at a greater than state average rate. Of the seventeen counties within these metropolitan areas, just four experienced population growth rates above the Georgia average, while three suffered absolute losses.

Only 37 of the state's 159 counties grew more rapidly than the Georgia average between 1980 and 1986 (see map); almost all of these were suburban metropolitan counties, and most were located in the Atlanta region. Twenty-nine of the 37 were above the Fall Line; eight were located in South Georgia. Of these eight, six were heavily affected by military build-ups at Warner Robins Air Force Base, Fort Stewart, and the Kings Bay submarine base.

Thirty-seven of Georgia's counties suffered absolute population declines during the period. Of these, almost all were located in the agricultural "Black belt" below the Fall Line, particularly in the southwestern and south central portions of the state. The four counties of extreme northwestern Georgia also experienced population losses during the decade, primarily due to declines in manufacturing employment.

LONG-TERM GROWTH TRENDS

The 1960s and 1970s were periods of relative prosperity for rural communities throughout most of the country. Only ten Georgia counties lost population during the 1970s. The 1980s, however, have marked a return to the long-run trend of relative rural decline in both economic opportunity and population.

The number of Georgia residents has approximately doubled since 1920, but only 38 counties have exceeded this rate of growth. Conversely, 63 of Georgia's 159 counties have fewer residents now than they did in 1920, with some losing as much as three-fourths of their populations.

Georgia's agricultural areas experienced extensive out-migration in the 1920s and 1930s as a result of a number of factors, particularly the death of "King Cotton," and increasing migration in the following two decades. Although this rural exodus has abated somewhat in recent years, it still continues, with 24 counties suffering absolute population declines since 1960.

Another trend is the increasing ascendancy of the state's metropolitan areas, particularly the Atlanta region. While Georgia's population has grown 175 percent since 1900, the Atlanta region's population has grown by 548 percent. The Atlanta MSA's percentage share of total state population stood at 17.8 percent in 1900, 31.6 percent in 1960, and 41.9 percent in 1986 (Table 2).

FUTURE PROSPECTS

The Georgia economy faces both tremendous challenges and great opportunities in the coming years. Fueled by national expansion in the rapidly growing high-tech manufacturing, service, and financial sectors for which it is a major center, the Atlanta region should continue to grow rapidly. In fact, for this region the challenge is not to create growth but rather to guide and control it in order to avoid some of growth's undesirable side effects such as overcrowded schools, disrupted neighborhoods, and traffic congestion.

Table 1

Georgia Population Change 1980-1986
Selected Areas

Area	1980	1986	Change	Percent Change
Georgia State Total	6,104,000	5,462,989	641,011	11.7
Total Georgia Metropolitan Counties	3,901,500	3,384,061	517,439	15.3
% of GA Total	63.9	61.9	80.7	
Total Georgia Non-Metro Counties	2,202,500	2,078,846	123,572	5.9
% of GA Total	36.1	38.1	19.3	
Georgia Total Less Atlanta MSA	3,543,700	3,324,846	218,854	6.6
% of GA Total	58.1	60.9	34.1	
Total Georgia MSAs Less Atlanta MSA	1,341,200	1,245,918	95,282	7.6
% of GA Total	22.0	22.8	14.9	
Atlanta MSA	2,560,300	2,138,143	422,157	19.7
% of GA Total	41.9	39.1	65.9	
Albany MSA	117,200	112,394	4,806	4.3
% of GA Total	1.9	2.1	0.7	
Athens MSA	141,500	130,015	11,485	8.8
% of GA Total	2.3	2.4	1.8	
Augusta MSA	251,200	221,747	29,453	13.3
% of GA Total	4.1	4.1	4.6	
Chattanooga MSA	107,500	105,779	1,721	1.6
% of GA Total	1.8	1.9	0.3	
Columbus MSA	201,900	191,839	10,061	5.2
% of GA Total	3.3	3.5	1.6	
Macon MSA	282,200	262,591	18,609	7.1
% of GA Total	4.6	4.8	2.9	
Savannah MSA	239,700	220,553	19,147	8.7
% of GA Total	3.9	4.0	3.0	

Source: U.S. Bureau of the Census.

The rapid expansion of the Atlanta region creates a vast market for the other areas of Georgia. It also generates substantial state tax revenues that can be used to improve education, transportation and other public services vital to the continued growth of the Georgia economy. Outside the Atlanta region a number of other Georgia communities also have developed into economic growth centers, providing jobs and income for surrounding counties. These centers should continue to expand, and perhaps grow in number.

For much of Georgia, however, the near-term economic prospects are not very bright. The severely depressed agricultural sector shows no signs of an early revival. National manufacturing employment is projected to grow slowly, if at all, during the remainder of this century, and for industries such as textiles and apparel that face strong foreign competition, the forecast is for continued employment decline.

One critical negative factor in attracting new employment in the expanding high technology industries

PERCENTAGE POPULATION CHANGE 1980-86

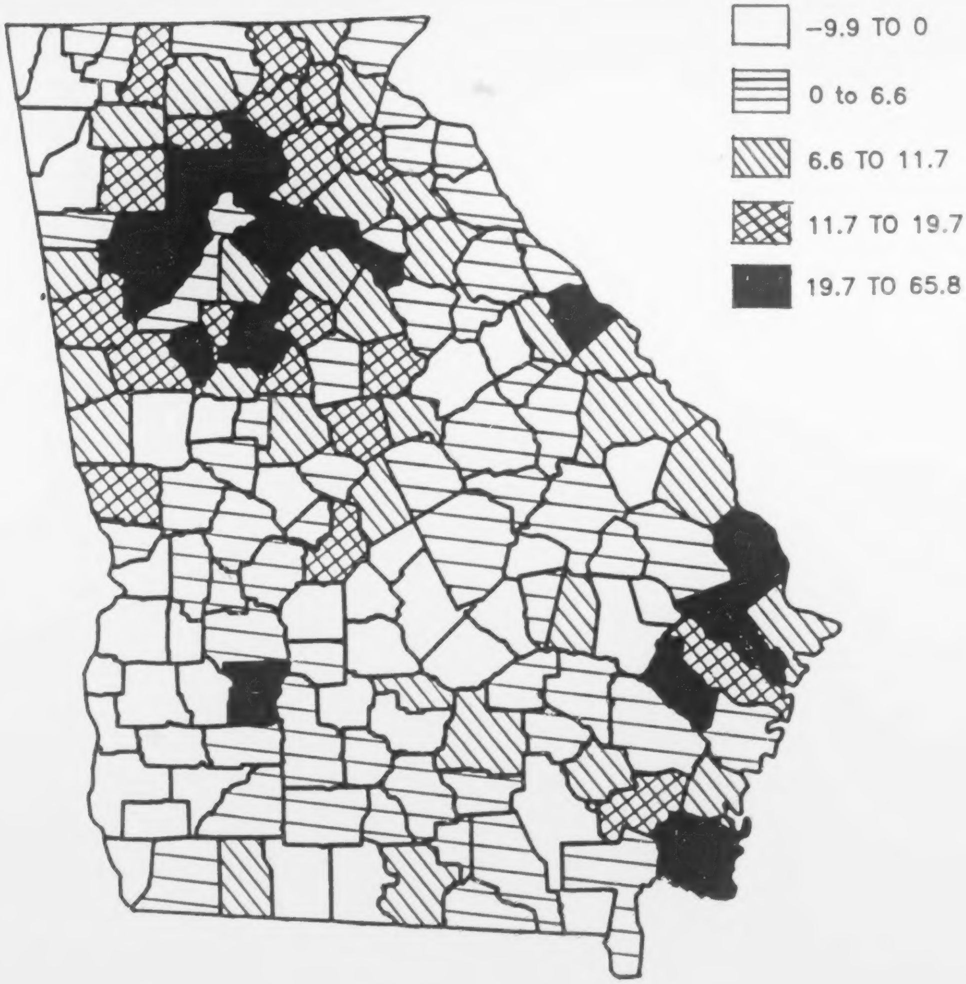
-9.9 TO 0
0 to 6.6
6.6 TO 11.7
11.7 TO 19.7
19.7 TO 65.8

Table 2

Atlanta MSA Population Trends, 1900-1986

Year	Population (000s) Georgia	 Atlanta MSA	Atlanta MSA as % of State
1900	2216.3	395.3	17.8
1920	2895.8	567.3	19.6
1940	3123.7	761.3	24.4
1960	3943.1	1247.9	31.6
1970	4605.4	1686.6	36.6
1980	5463.1	2138.3	39.1
1986	6104.0	2560.3	41.9

is the very low level of educational attainment found throughout most of Georgia. Median school years completed by adult Georgians in 1980 exceeded the national average of 12.5 years in only seven counties clustered around the metro Atlanta area, and only eleven more exceeded the Georgia median of 12.2 years. Over 100 Georgia counties had educational attainment levels one to three years below the national median.

The wide disparities in economic opportunity, population growth, and future prospects among Georgia's regions present great challenges for the state's business and political leaders. Improved public education and other initiatives will require very careful study and implementation if Georgia is to generate the maximum attainable economic opportunity for its citizens.

Charles F. Floyd is professor of real estate in the College of Business Administration.

Fifth in a
continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

The Macon Region

The Macon region borders the Metropolitan Atlanta, Southwest Piedmont, South Central Coastal Plain, and East Central regions. It consists of Houston, Peach, Crawford, Bibb, Bleckley, Jones, Monroe, and Twiggs counties and includes the cities of Macon, Warner Robins, Forsyth, and Cochran.

The region's most predominant employers are the food, apparel, lumber and wood products, paper, printing and publishing, non-electrical machinery, and transportation equipment industries (Table 1). Robins Air Force Base, Mercer University, and Fort Valley College are located in the area and provide significant employment.

The food and apparel industries in the Macon region have experienced a very slight increase or a decline in statewide employment between 1980 and 1986. The food industry, which is primarily concentrated in Bibb and Houston counties, experienced a statewide increase in employment of 3 percent between 1980 and 1986. The apparel industry, which is primarily concentrated in Bibb, Monroe, Peach, and Houston counties, suffered a 1.8 percent decline statewide employment over the same period.

Regional industries which have experienced strong growth in statewide employment between 1980 and 1986 include lumber and wood products, paper, printing and publishing, non-electrical machinery, and transportation equipment. They climbed 22.3 percent, 10.5 percent, 51.9 percent, 15.5 percent, and 37.4 percent respectively.

As the data in Table 2 show, the civilian labor force unemployment rate in the Macon region averaged 6.8 percent between 1981 and 1985. Civilian labor force growth increased by 1.4 percent between 1980 and 1985

Table 1

Macon Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
	1-19	20-99	100-249	Over 250	Total
Food and kindred products	6	7	5	2	20
Tobacco manufactures	0	0	0	1	1
Textile mill products	2	6	6	1	15
Apparel and other textile products	3	2	5	6	16
Lumber and wood products	61	9	1	0	71
Furniture and fixtures	7	0	0	1	8
Paper and allied products	5	2	2	3	12
Printing and publishing	34	5	0	1	40
Chemicals and allied products	3	4	0	1	8
Petroleum and coal products	0	1	0	0	1
Rubber and plastics products	6	5	0	0	11
Stone, clay, and glass products	13	5	2	1	21
Fabricated metal products	10	5	3	1	19
Non-electrical machinery	23	4	0	0	27
Electric and electronic equipment	1	3	0	1	5
Transportation equipment	2	1	1	3	7
Instruments and related products	5	0	0	0	5
Miscellaneous industries	11	2	0	1	14
Total	192	61	25	23	301

Source: U.S. Department of Commerce, *1982 Census of Manufactures.*

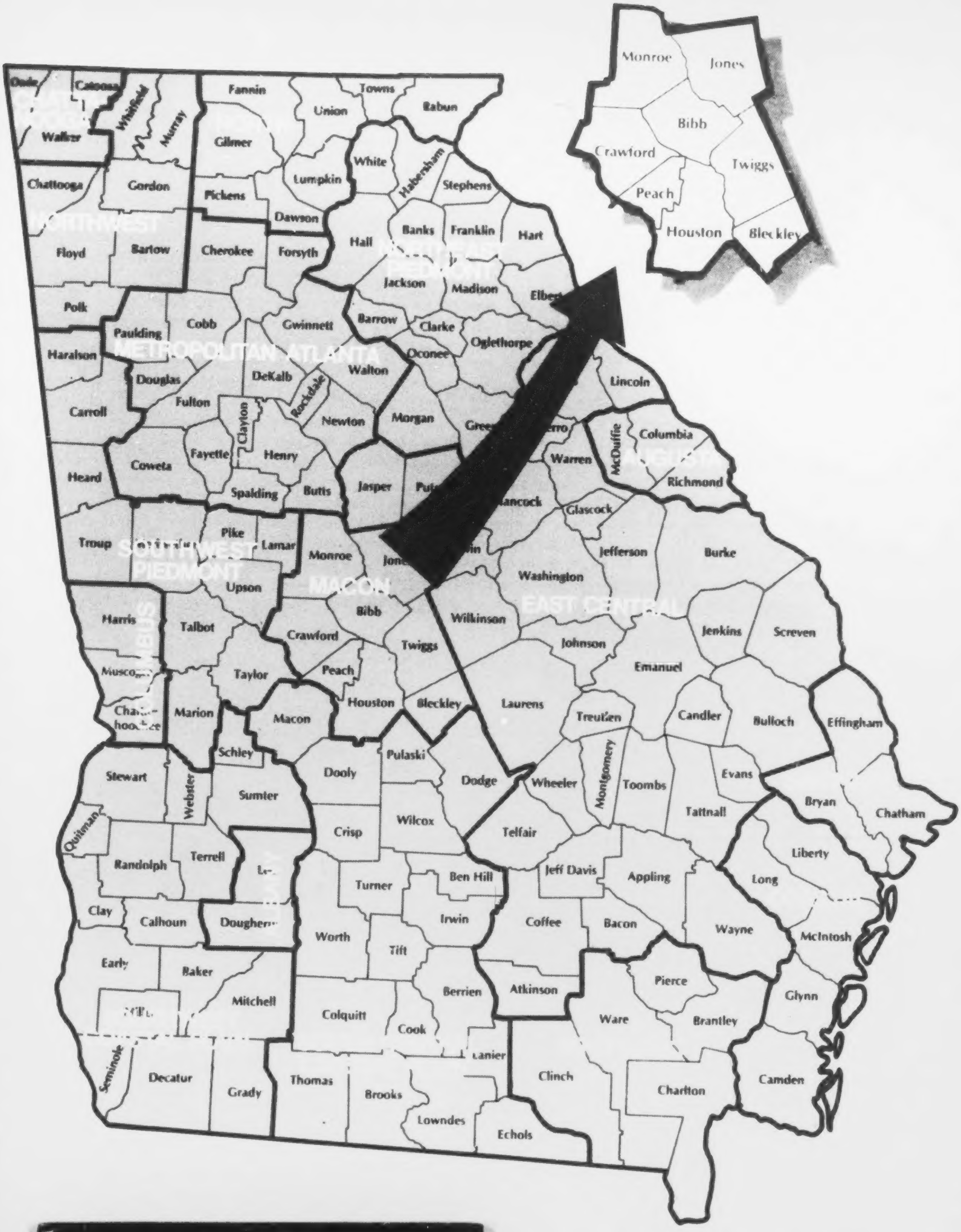
Monroe
Jones
Bibb
Crawford
Twiggs
Peach
Houston
Bleckley
NORTHWEST
NORTHEAST PIEDMONT
METROPOLITAN ATLANTA
AUGUSTA
SOUTHWEST PIEDMONT
MACON
EAST CENTRAL
COLUMBUS
Dade
Catoosa
Walker
Whitfield
Murray
Fannin
Towns
Union
Rabun
Gilmer
White
Habersham
Stephens
Chattooga
Gordon
Pickens
Lumpkin
Dawson
Banks
Franklin
Hart
Floyd
Bartow
Cherokee
Forsyth
Hall
Jackson
Madison
Elbert
Polk
Paulding
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Haralson
Douglas
DeKalb
Rockdale
Oconee
Walton
Lincoln
Carroll
Fulton
Clayton
Newton
Morgan
Columbia
McDuffie
Heard
Coweta
Fayette
Henry
Warren
Richmond
Spalding
Butts
Jasper
Hancock
Glascock
Troup
Pike
Lamar
Monroe
Jefferson
Burke
Upson
Washington
Harris
Talbot
Bibb
Wilkinson
Crawford
Twiggs
Johnson
Jenkins
Screven
Muscogee
Taylor
Emanuel
Chattahoochee
Marion
Peach
Houston
Bleckley
Laurens
Treutlen
Candler
Bulloch
Effingham
Macon
Schley
Pulaski
Dooly
Dodge
Wheeler
Montgomery
Toombs
Evans
Stewart
Webster
Sumter
Bryan
Chatham
Quitman
Crisp
Wilcox
Telfair
Tattnall
Randolph
Terrell
Lee
Liberty
Turner
Ben Hill
Jeff Davis
Appling
Long
Clay
Calhoun
Dougherty
Irwin
Coffee
Bacon
Wayne
Worth
Tift
McIntosh
Early
Baker
Mitchell
Atkinson
Pierce
Berrien
Glynn
Colquitt
Cook
Ware
Brantley
Lanier
Seminole
Decatur
Grady
Thomas
Brooks
Clinch
Charlton
Camden
Lowndes
Echols

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Table 2

Civilian Labor Force
Macon

Year	Employed	Unemployed	Total
1980	124,949	7,730	132,679
1981	126,018	8,396	134,414
1982	128,516	9,448	137,964
1983	126,692	9,915	136,607
1984	128,791	8,938	137,729
1985	132,010	10,375	142,385
1986	139,039	9,007	148,046

Source: Georgia Department of Labor, Labor Information Systems.

compared to the 2.5 percent growth rate for the state as a whole.

Residential construction in the region was volatile between 1980 and 1986 (Table 3). Total residential construction ranged from a low of 929 units in 1981 to a high of 2,762 units in 1983. In 1981 residential construction fell 26 percent to 929 units, a drop associated with the extremely high interest rates that year. After that, residential construction increased for two consecutive years to its peak in 1983. This brief growth period was followed by a two-year construction decline before a rebound in 1986.

Nonresidential construction has not been dominated by any one type of construction. Industrial construction in the Macon region dropped between 1980 and 1986, with value ranging from a high of $10.7 million in 1980 to a low of $1.8 million in 1985.

The office and professional buildings construction fluctuated between $1.7 million and $9.6 million during the six years. Despite high interest rates in 1981, the level of office construction during that year reached $6.3 million. It fell sharply to $1.7 million in 1982, however. Two years later, it bounced back to a total construction value of $9.6 million.

Retail store construction was very stable between 1980 and 1986 except for sharp increases in 1981 and 1985. It jumped to $9.8 million in 1981 from $4.1 million in 1980. This upward spike was not sustained into 1982 although retail store construction did peak in 1985 with a total value of $15.8 million. Unfortunately, this high level did not continue into 1986 and value dropped to $7.5 million that year.

Table 3

Building Permits
Macon

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	825	1,261	$10,686,018	$1,955,530	$4,059,117
1981	478	929	6,104,051	6,282,136	9,797,975
1982	726	1,346	5,950,354	1,739,226	3,051,235
1983	1,166	2,762	3,161,146	2,451,470	3,803,023
1984	1,321	2,125	5,452,617	9,640,831	4,122,220
1985	1,220	1,818	1,790,500	6,655,667	15,820,776
1986	1,655	2,377	2,587,230	4,089,945	7,533,840
Total	7,391	12,618	$35,731,916	$32,714,805	$48,188,186

Source: U.S. Department of Commerce, Bureau of the Census.

Recent Real Estate Developments

Lina Echeverri

Overall, the total number of residential units authorized by permit during the first three quarters of 1987 is 18.7 percent below the same period in 1986. Reports released by the Bureau of the Census show that for the third quarter of 1987 the number of permits dropped 7.2 percent below last year's levels. Atlanta accounts for 68.2 percent of the total number of permits issued in the state, the remaining metropolitan statistical areas account for 11.5 percent of the total, while 20.3 percent corresponds to the rest of the counties outside the MSAs.

As illustrated in Table 1, most of Georgia's MSAs experienced a sharp decline in the number of private housing units authorized by permit during the third quarter of 1987. The exceptions were Chattanooga and Savannah where the number of issuances increased by 106.5 and 43.4 percent, respectively. Since the base data for both metropolitan areas are not large enough, any major development produces a significant change in percentages. The same is true for the MSAs that experienced a steep decline in the percentage of permits issued. In terms of rankings, Cobb County issued the most permits in the state, followed by Fulton County.

The value of the private housing units authorized is shown in Table 2. Housing values increased in Athens, Atlanta, Chattanooga, and Savannah by 12, 8, 84.7, and 2.5 percent, respectively, above the corresponding period in 1986. The total value for the state showed no growth during the third quarter of 1987.

Table 1

Private Housing Units Authorized

	Albany	Athens	Atlanta	Augusta	Chattanooga	Columbus	Macon	Savannah	State
1980	NA	NA	22,058	1,667	155	576	1,145	1,152	34,837
1981	445	713	18,596	1,185	149	382	840	1,245	29,996
1982	496	780	24,015	2,258	145	560	1,255	1,839	38,737
1983	637	1,937	44,460	3,578	210	1,499	2,662	2,381	65,910
1984	791	1,322	50,131	4,265	269	1,122	2,083	1,754	70,264
I	152	205	12,334	723	75	364	552	357	17,418
II	217	612	14,981	872	46	256	452	395	21,396
III	151	256	12,421	849	127	183	593	316	17,827
IV	85	139	9,207	753	108	236	491	271	13,724
1985	580	1,571	50,568	4,460	215	1,329	1,760	2,761	74,985
I	89	289	10,740	1,470	118	243	396	696	16,279
II	107	574	13,879	789	65	250	504	403	19,674
III	128	282	20,981	1,490	42	282	312	1,078	20,981
IV	93	393	13,396	657	30	554	376	374	17,387
1986	814	1,490	53,556	3,892	274	1,062	2,251	2,614	76,896
I	340	396	12,873	1,335	39	280	512	655	19,129
II	111	313	16,092	965	132	284	625	806	22,601
III	153	250	13,362	739	46	325	529	419	19,000
IV	210	531	11,229	853	57	173	585	734	16,166
1987									
I	69	232	11,263	525	120	682	401	413	15,713
II	82	323	10,919	554	151	246	489	698	16,055
III	109	226	12,033	426	95	141	428	601	17,632
IV									
% CHANGE ON AN ANNUAL BASIS									
1985-1986	40.3	-5.2	5.9	-12.7	27.4	-20.1	27.9	-5.3	2.5
I	282.0	37.0	19.9	-9.2	-66.9	15.2	29.3	-5.9	17.5
II	3.7	-45.5	15.9	22.3	103.1	13.6	24.0	100.0	14.9
III	19.5	-11.3	-36.3	-50.4	9.5	15.2	69.6	-61.1	-9.4
IV	125.8	35.1	-16.2	29.8	90.0	-68.8	55.6	96.3	-7.0
1986-1987									
I	-79.7	-41.4	-12.5	-60.7	207.7	143.6	-21.7	-36.9	-17.9
II	-26.1	3.2	-32.1	-42.6	14.4	-13.4	-21.8	-13.4	-29.0
III	-28.8	-9.6	-9.9	-42.4	106.5	-56.6	-19.1	43.4	-7.2
IV									

Note: Quarterly totals may not add to annual figures because of revisions in monthly data.

Source: U.S. Department of Commerce, Bureau of the Census, *Housing Units Authorized by Permit Issuing Places* and unpublished reports.

Table 2

Value of Private Housing Units Authorized
(Thousands of Dollars)

	Albany	Athens	Atlanta	Augusta	Chattanooga	Columbus	Macon	Savannah	State
1980	NA	NA	$746,102	$52,073	$5,057	$19,573	$38,811	$46,572	$[illegible],166,333
1981	$12,492	$20,071	648,789	39,378	4,233	14,845	30,364	51,765	1,018,380
1982	12,562	23,096	931,925	65,415	4,551	89,748	44,690	66,530	1,387,196
1983	18,279	56,613	1,625,171	120,311	6,048	50,961	86,300	73,252	2,367,445
1984	24,862	46,503	2,151,672	149,394	7,347	40,978	83,734	97,505	2,896,777
I	8,038	8,869	518,216	26,608	2,361	13,430	21,704	23,837	707,619
II	6,578	18,619	604,278	28,833	1,651	9,180	21,670	33,089	838,633
III	3,842	8,543	516,477	27,743	1,127	6,899	19,455	18,205	694,190
IV	2,982	6,716	415,467	24,901	2,358	8,502	20,214	18,208	587,720
1985	22,062	63,381	2,289,203	152,809	7,101	49,089	77,661	136,264	3,245,941
I	4,028	11,702	480,295	43,251	1,036	9,095	19,574	39,455	684,250
II	4,170	22,072	634,407	33,859	2,111	9,998	20,461	25,928	877,146
III	5,126	12,972	881,761	49,141	1,583	13,641	17,815	44,288	881,757
IV	4,305	14,858	595,306	26,508	1,193	16,353	15,862	24,396	744,493
1986	30,053	65,802	2,787,681	187,267	8,047	47,502	103,452	158,993	3,868,204
I	9,524	17,682	646,224	57,490	1,594	11,455	23,599	34,419	907,800
II	5,717	17,921	838,033	52,899	3,551	12,580	29,374	51,463	1,158,014
III	7,041	12,527	634,860	42,599	1,599	12,618	24,077	33,097	912,090
IV	7,771	17,672	668,564	34,279	1,303	10,849	26,402	40,014	890,300
1987									
I	2,825	17,041	638,744	31,476	4,837	21,359	22,383	32,427	849,029
II	3,882	19,805	708,227	32,306	3,931	14,576	23,697	45,222	1,002,251
III	4,327	14,465	706,834	24,976	3,045	9,350	23,752	34,989	940,677
IV									
% CHANGE ON AN ANNUAL BASIS									
1985-1986	33.6	1.9	19.5	20.2	11.2	-5.1	30.7	14.5	16.9
I	132.0	48.2	32.0	30.4	51.0	23.6	18.3	-14.4	30.2
II	34.5	-20.3	29.6	53.3	65.0	23.4	40.9	94.7	29.5
III	34.8	-5.3	-29.4	14.9	-0.9	-9.2	32.6	-26.7	1.5
IV	77.1	16.7	10.2	26.9	7.2	-34.9	63.3	60.9	17.3
1986-1987									
I	-71.2	-6.5	-4.1	-46.9	194.3	80.8	-8.0	-8.6	-9.3
II	-34.1	7.2	-18.0	-40.8	7.4	12.4	-21.8	-14.8	-16.1
III	-40.4	12.0	8.0	-43.1	84.7	-28.1	-4.3	2.5	0.0
IV									

Note: Quarterly totals may not add to annual figures because of revisions in monthly data.

Source: U.S. Department of Commerce, Bureau of the Census, *Housing Units Authorized by Permit Issuing Places* and unpublished reports.

Table 3

Existing Home Sales in Georgia for Single Family, Apartment Condos, & Co-ops
(000s of units)

Year	Annual Totals	Quarterly Totals* I	II	III	IV
1983	51.0	47.8	48.3	51.1	57.1
1984	60.1	65.9	63.9	51.1	58.7
1985	65.1	68.8	63.0	58.4	70.3
1986	75.1	71.8	70.9	78.4	83.7
1987	92.5	80.1	104.9		

*Note: Quarterly figures are seasonally adjusted annual rates.

Source: National Association of Realtors

Table 4

Mobile Home Shipments to Georgia

Year	Annual Totals	Quarterly Totals I	II	III	IV
1983	16,268	3,297	4,401	4,226	3,794
1984	18,486	4,174	4,695	4,621	4,425
1985	20,199	4,995	5,640	5,180	4,384
1986	16,774	4,661	4,536	3,995	3,582
1987		3,373			

Note: Quarterly totals may not add to annual totals because of revisions in monthly data.

Source: National Conference of States on Building Codes and Standards.

Interest rate volatility during the first half of 1987, the new tax law, and the surplus of residential units stimulated the existing home sales market in the state. According to data released by the National Association of Realtors, Georgia reached the 100,000 unit level in resale volume for the first time (Table 3), and enjoyed the nation's second best increase of home sales during the spring. During the first and second quarters of 1987, existing home sales increased 11.6 and 48 percent, respectively, when compared to the same periods in 1986. These changes resulted in a cumulative 29.6 percent increase in sales of existing homes during the first half of the year.

The average price for a new home in the Atlanta MSA rose to $144,100 in August, up 17.5 percent over its level a year ago. Even though demand for new housing units dropped because of rising interest rates, prices continued to climb. This seems to defy the laws of supply and demand but the underlying reason is that the units being sold were the most expensive and they drove up the average price.

The number of apartment and co-op permits were greatly affected by the new tax law. Figures for September indicate that the number of permits increased slightly, but the total for the first three quarters of 1987 is 27 percent below the comparable period in 1986.

An additional element in the residential sector is the number of mobile home shipments to the state (Table 4) Almost 3,400 units were shipped during the first quarter of 1987, which is 5.8 percent below the number shipped during the last quarter of 1986 and down 27.6 percent compared to first quarter 1986. Shipments have been declining over the last two years due to an oversupply of other residential units.

GEORGIA BUSINESS STATISTICS

SERIES	AUG 1987	JULY 1987	JUNE 1987	AUG 1986
Georgia Leading Indicators Index[1] (1969=100)	179.92	179.94	177.68	170.76
Georgia Coincident Indicators Index[2] (1969=100)	540.39	540.97	536.89	508.09
Nonagricultural Employment[2] (thousands)	2,753.4	2,747.1	2,757.4	2,689.4
Manufacturing Employment[2] (thousands)	570.4	568.0	571.0	563.4
Average Weekly Earnings, Manufacturing[2] (dollars)	345.69	350.27	351.50	341.14
Help Wanted Advertising, Atlanta Index[3] (1967=100)	268	279	277	245
Taxable Retail Sales[4] ($ millions)	3638.5	3376.0	3680.4	3296.4
Building Permits[5]				
Residential Housing Units, Private (thousands)	5.2	5.8	7.0	6.6
Value of Residential Housing ($ thousands)	290,286	324,932	355,824	294,158
Value of Nonresidential Construction ($ thousands)	258,171	229,028	220,179[p]	209,448
Industrial Buildings	10,561	30,008	12,928	17,337
Office, Bank and Other Professional Buildings	37,734	27,489	20,123	45,541
Stores and Other Mercantile Buildings	53,350	55,242	49,593	43,614
Other	156,526	116,289	137,535	
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (December 1977 = 100)	183.2	182.6	182.1	176.4
South/Population more than 1,200,000[a]	184.0	183.3	182.6	–
South/Population 450,000 - 1,200,000[a]	184.8	184.1	183.7	–
South/Population 50,000 - 450,000[a]	181.7	181.4	180.8	–
South/Population Less than 50,000[a]	180.0	179.9	179.1	–
Atlanta (1967=100)[b]	–	–	348.2	338.9
Prices Received by Farmers, Georgia Index[7] (1977=100)	126[r]	125[r]	126	139
	1987:II	**1987:I**	**1986:IV**	**1986:II**
Total Personal Income[8] ($ millions)	86862	85750	84012	81337

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

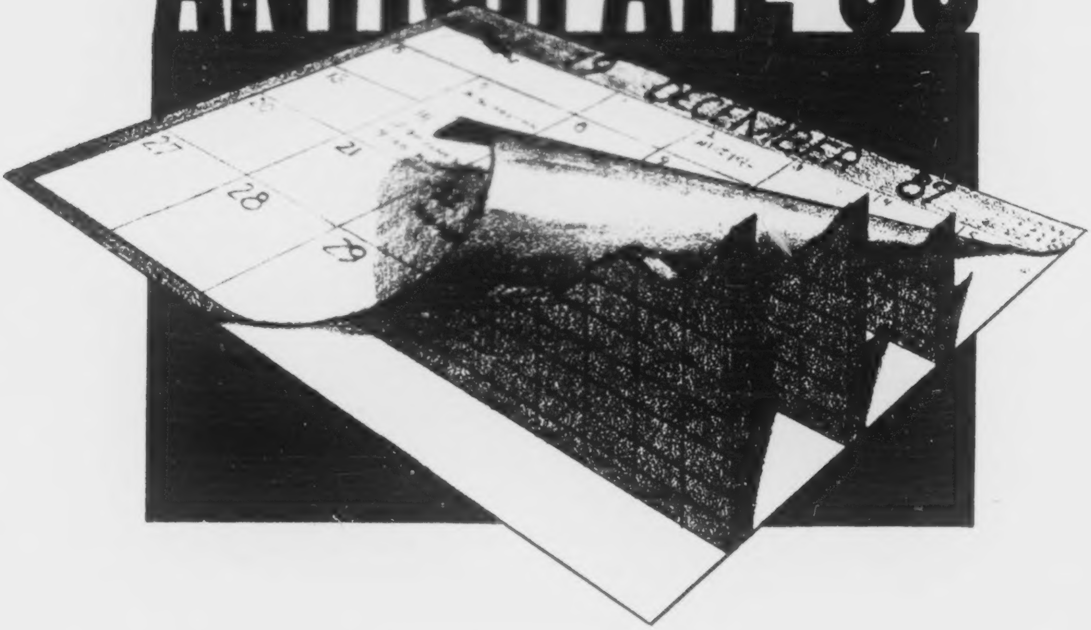
[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[a] Group size revised as of January 1, 1987; 1986 data are for June.

[b] Atlanta index is average of first 6 months of the calendar year (Jan. - June, 1986 and 1987).

[r] Revised.

ANTICIPATE '88



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GEORGIA BUSINESS AND
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January-February 1988
Volume 48, number 1

Some Economic Perspectives on Georgia's School Dropout Problem

Rudolph A. White

School dropout rates clearly signal major problems for students, their families, and society. In general, dropout levels are associated with rates of poverty, crime, unemployment, drug abuse, and teenage pregnancy, among other things.

Children of dropouts quite often will dropout, or if graduating will earn lower SAT test scores and have lower rates of college enrollments, perpetuating the cycle. Georgia suffers in still other ways, such as a worsening climate for economic development. GrantThornton's 1986 *General Manufacturing Climates* shows Georgia dropping in rank among the states from 8th in 1985 to 23rd in 1986, because the more recent study incorporated Georgia's comparatively poor education achievements.

Clearly, both individuals and society are concerned about dropouts. Understandably, national debate is intensifying. Among the questions: Is society simply abandoning our children? Do dropouts increase because poor districts seldom can generate a property tax yield sufficient to hire top teachers, or to replace decaying buildings and wornout texts? Are the school systems causing dropouts because minority students are more often subjected to discipline, or three times more often pushed into retardation-class status or into a dead-end vocational track? If certification tests are imposed without program improvements, is the prime result "overagedness" which increases dropouts?

This article addresses only a selected few of the questions. Are dropouts somehow just a problem of areas other than Georgia? Is it possible that recent news accounts have overstated both the nation's and Georgia's dropout problem? Just what are the socio-economic foundations for our dropouts?

DROPOUTS IN GEORGIA

Only limited statistics on dropouts are available, and often these are of debatable validity. For example, a recent *U.S. News and World Report* article noted that dropout rates for whites and blacks respectively were 1 in 6, and 1 in 3; yet it also said that even Boston had more students dropping out than were graduating, and in rural Alabama and Louisiana, and parts of Detroit, more than 2 out of 3 students were dropping out. In contrast, the GrantThornton 1985 *Climates* study found that only 20 percent of U.S. adults aged 25 to 64 were grade or high school dropouts.

Statistics for Georgia shown by Gary Orfield in his new study for the Southern Education Foundation reflect an alarming pattern. Dropout ratios were calculated by dividing numbers enrolled in the twelfth grade and/or graduating in a given year by the number in the ninth grade class four years earlier. Graduation rates then were subtracted from 100 percent to arrive at the dropout rates. An implicit assumption was that a fixed cohort of students exists, who either graduate on a fixed time schedule, or have become dropouts. Atlanta's dropout rate was estimated to be 40 percent; suburban rates stood at 30 percent; the composite rate stood at 37 percent. Dropout rates have been worsening since 1983.

If these rates are true representations, then Georgia's situation becomes even more disturbing when compared with national data. Data for the U.S. in 1985 show that less than 14 percent of persons aged 25 to 29 were school dropouts, far below the 37 percent estimate Orfield gives for Georgia teenagers. Orfield reports that Georgia's dropouts have increased in recent years, yet the nation's dropout rate has improved since 1983. For blacks aged 25 to 29, the U.S. dropout rate was under 20 percent, whereas Orfield showed a 40 percent dropout rate for young Atlantans (blacks are 92 percent of the district's student body).

A BETTER YARDSTICK

True dropout rates are measures of the percentages of persons terminating schooling before completing high school. The percentage not even reaching the ninth grade, functional illiterates, signals a group which has even greater problems than high school dropouts. Georgia unfortunately stands in the top third of states ranked by pre-high school dropout rates.

Orfield estimates dropouts by constructing the ratio of graduates to the ninth grade enrollment level. This is a weak, and sometimes misleading indicator. Starting with numbers in the ninth grade ignores the fact that students do not always stay in school until the ninth grade. Moreover, entrants can leave school systems other than as dropouts or graduates. Some may fail to complete some courses or fail to pass certification examinations, thus delaying their graduation year. Others may complete certification through GED examinations or transfer to other schools. Even if numbers remain constant, there is not a fixed cohort of students. The racial and socioeconomic composition of a student body can change over time, influencing graduation rates.

The Bureau of Census reported that a million 18 and 19 year olds were still enrolled in school below the college level; so too were a quarter million persons 20 to 34 years of age. Across the U.S. in 1985, 10.7 percent of the whites and 23.4 percent of the blacks 18 and 19 years old were still enrolled at the pre-college level. The study also found that sizeable numbers transfer to other schools; in 1984, 27 percent of high school students were found to have changed schools at some time during the year.

The apparent graduation rate, the ratio between the ninth grade enrollment and graduates four years later, often will move counter to the true graduation rate. If the no-pass no-play rule discouraged sports-minded youngsters so that 90 out of an original 100 fifth graders enrolled in the ninth grade with 72 graduating, the apparent graduation rate of 80 percent clearly would overstate the true graduation rate of 72 percent. If all of the next 100 stayed in school through the ninth grade, with 78 completing high school, the apparent graduation rate would fall while the true rate would rise. Hundreds of white flight mid-teenagers could leave the Atlanta district for Cobb or Gwinnett County suburbs; or transfer to Forsyth County or private schools or other districts not encompassed in the Orfield study. Clearly, the receiving districts' apparent graduation rates would increase, while Atlanta's rate would decrease.

ALTERNATIVE STATISTICS

Logic suggests that mobile populations cannot be pictured adequately. Is there statistical evidence that Georgia's dropout rates are not as high as reported? Each month, the Bureau of Census interviews hundreds of Georgia's households as part of the national sample for its Current Population Survey. Data for 1986 show that 81.8 percent of Georgians aged 25 to 44, the baby boom generation, have completed high school; about 40 percent have attended college. Georgia's dropout rates, unfortunately, are higher than the U.S. average. Metro Atlanta stands above the state average, with an 87.8 percent graduation rate; nearly 50 percent had completed some years of college.

Georgia's comparatively larger dropout burden can be seen in Table 1. The 1986 statewide rate stands at 18.2 percent, or about 15 and 25 percent for whites and blacks, respectively. For metro Atlanta, the dropout rate is 12.2 percent. Note that the survey results show that more than 90 percent of metro Atlanta's 16 and 17 year olds were still in school in 1986.

Dropout rates ran higher for nonmetropolitan Georgia. Nearly 27 percent of the baby boom generation in rural areas dropped out before high school graduation. Also, the proportion reporting some years of college fell below 29 percent. Although about 90 percent of persons aged 16 and 17 were still in school in 1986, rural poverty problems portend slower and lower rates of high school graduation.

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Table 1

School Attainment, Baby Boomers (25-44) 1986, By State (Percent)

State	Nonwhite %	Less Than 9th	High School Dropout	High School Grad	Some College	High School Plus
Alabama	21.7	6.9	9.3	43.9	39.9	83.8
Alaska	21.3	2.2	4.8	41.4	51.6	93.0
Arizona	4.6	7.2	7.6	34.2	51.0	85.2
Arkansas	17.5	7.7	9.1	45.2	38.0	83.2
California	15.6	9.0	6.5	30.0	54.5	84.5
Colorado	7.1	2.3	4.9	36.2	56.6	92.8
Connecticut	5.8	4.6	5.6	35.8	54.1	89.8
Delaware	16.4	2.7	6.2	45.1	46.0	91.1
District of Columbia	71.2	5.1	8.4	29.3	57.2	86.5
Florida	14.5	6.4	8.3	39.5	45.8	85.3
Georgia	30.2	6.2	12.0	43.3	38.5	81.8
Hawaii	68.6	4.2	4.7	38.7	52.4	91.1
Idaho	2.0	6.0	6.8	41.2	46.0	87.2
Illinois	15.5	5.9	7.7	38.0	48.4	86.4
Indiana	8.1	6.1	8.8	50.3	34.8	85.1
Iowa	1.8	2.9	6.0	51.3	39.8	91.1
Kansas	6.7	2.1	5.5	43.0	49.4	92.4
Kentucky	9.2	9.1	12.0	45.6	33.3	78.9
Louisiana	27.3	7.4	9.7	45.9	37.0	82.9
Maine	0.9	5.3	8.3	45.0	41.4	86.4
Maryland	23.7	3.2	7.8	41.9	47.1	89.0
Massachusetts	5.4	5.1	5.0	34.2	55.6	89.9
Michigan	14.4	4.3	8.6	44.0	43.1	87.1
Minnesota	3.7	1.0	4.2	49.1	45.7	94.8
Mississippi	34.7	9.2	15.1	37.2	40.5	77.7
Missouri	10.5	4.3	8.7	45.7	41.3	87.0
Montana	4.5	2.7	5.1	40.7	51.5	92.2
Nebraska	3.6	2.6	4.5	48.0	44.9	92.9
Nevada	10.3	3.0	9.6	40.9	46.5	87.4
New Hampshire	1.1	4.8	8.2	43.9	43.1	87.0
New Jersey	13.4	4.8	5.5	39.7	50.0	89.7
New Mexico	9.9	6.9	8.5	38.2	46.4	84.6
New York	16.7	6.1	7.5	37.6	48.8	86.4
North Carolina	20.8	7.5	11.0	40.0	41.5	81.5
North Dakota	4.1	2.7	4.7	38.4	54.2	92.6
Ohio	10.0	3.8	9.0	47.4	39.8	87.2
Oklahoma	14.6	5.4	8.8	42.3	43.5	85.8
Oregon	4.9	2.0	5.6	36.9	55.5	92.4
Pennsylvania	8.5	3.6	7.0	51.5	37.9	89.4
Rhode Island	3.9	6.0	8.4	39.9	45.7	85.6
South Carolina	29.2	8.8	11.8	41.5	37.9	79.4
South Dakota	4.7	3.5	4.7	46.6	45.2	91.8
Tennessee	16.7	12.0	11.3	43.9	33.5	76.7
Texas	13.4	9.9	8.2	35.9	46.0	81.9
Utah	3.3	1.5	4.5	34.4	59.6	94.0
Vermont	0.4	3.8	5.0	44.0	47.2	91.2
Virginia	19.9	7.4	9.0	36.9	46.7	83.6
Washington	8.2	2.6	5.4	36.9	55.1	92.0
West Virginia	4.1	9.8	10.5	53.0	26.7	79.7
Wisconsin	5.5	2.6	6.4	47.0	44.0	91.0
Wyoming	1.6	2.5	5.4	44.5	47.6	92.1
U.S. Total	**-.-**	**8.6**	**8.8**	**40.0**	**42.7**	**82.6**

Do other studies corroborate these data? The 1986 *Statistical Abstract of the U.S.* showed the 1985 high school completion rate for all U.S. adults aged 25 to 34 was 86.8 percent. Blacks had lower rates than whites; Hispanics had the lowest average, with a dropout rate above 40 percent.

The GrantThornton study reported Georgia's 1985 dropout rate for persons aged 25 to 64 to be 25.8 percent. These estimates were developed by the University of Illinois, using the Census Bureau's Current Population Survey.

Survey results show that all Georgia adults do not even come close to Orfield's composite rate of 37 percent. On average, only 17.2 percent of persons aged 18 to 24 in metro Atlanta were reported as having dropped out before high school graduation. For nonmetropolitan Georgians in the same age group, the dropout rate was 22.1 percent.

SOCIO-ECONOMIC FACTORS

Even if Georgia's dropout rate is only half as large as Orfield's estimate, dropouts are a serious problem which Georgians must address. U.S. dropout rates have been found to be strongly related to income levels and race. At the same time, family incomes depend upon the parents' educational levels. Rates of progress, that is attaining grade levels by certain ages, also are tied to family socio-economic status.

Certain other elements contribute to the long-term intransigence of the dropout problem. College Board reports on SAT scores show students from high income families score about 200 points higher than students from low income families. When parents have graduate degrees, their offspring earn SAT scores about 150 points above the average for children whose parents are high school graduates. Scores for black students fall about 200 points below the average for whites. The net result highlights the dilemma for policy framers -- short term actions to reduce dropouts can be self-defeating if quality of education is ignored.

Income patterns for Georgia families reflect the fact that black families' incomes are significantly lower than those of whites. More than half of all white families, but less than 30 percent of blacks, report incomes above the $17,500 level. While poverty proportions are not detailed, the pattern points up the condition that most black students live in or near the poverty level, with its consequent effects on school outcomes.

Given the interactive nature of incomes and education, low levels of educational attainment by adults reinforces the dismal outlook for dropouts. Other data for black and white adults aged 18 to 64 (if not still enrolled in school) highlights the fact that parents with low incomes usually have low educational attainment themselves. About a third of white adults had completed some college; about 19 percent had not completed high school. About 17 percent of black adults had completed some years of college, but more than twice as many were dropouts at the grade or high school level. As Tables 2 and 3 illustrate, blacks usually have a slower rate of grade completion than whites. While blacks generally score about 200 points less than whites on average, significant differences exist between regions. Black students in Atlanta had an average score of 720 in 1986. The average score for entering freshmen at the historically black colleges, who draw their

Table 2

Family Income and Educational Attainment, 1984-1985
Persons 14-24 (Percent)

Race	Family Income	Below 9th Grade	9-11th Grade	12th Grade	1-3 Years College	4 Years College	5+ Years College
White	Under - 10,000	5.8	36.8	15.4	29.4	7.3	5.3
	10,000 - 17,499	7.6	55.0	11.9	21.5	4.0	0.0
	17,500 - 24,999	3.5	47.6	17.8	23.7	4.6	2.8
	25,000 - 34,999	3.5	51.1	13.7	27.4	4.3	0.0
	35,000 - 49,999	6.6	54.7	10.9	26.3	1.4	0.0
	50,000 - Above	4.4	34.7	14.8	40.8	5.4	0.0
Black	Under - 10,000	12.9	53.4	13.6	11.5	5.2	3.4
	10,000 - 17,499	11.9	46.1	20.7	18.9	2.4	0.0
	17,500 - 24,999	7.9	54.6	18.5	18.9	0.0	0.0
	25,000 - 34,999	4.8	25.7	17.1	38.9	13.5	0.0
	35,000 - 49,999	8.7	21.4	7.8	62.2	0.0	0.0
	50,000 - Above	0.0	100.0	0.0	0.0	0.0	0.0

Table 3

Current Grade Attainment, 1984-1985
Enrolled Persons, 14-24 (Percent)

Race	Age	Below 9th Grade	9-11th Grade	12th Grade	1-3 Years College	4 Years College	5+ Years College
White	14-15	18.1	81.9	0.0	0.0	0.0	0.0
	16-17	0.0	64.1	32.4	3.5	0.0	0.0
	18-19	0.0	9.5	22.6	67.9	0.0	0.0
	20-21	0.0	1.1	3.0	78.6	17.3	0.0
	22-24	0.0	6.4	1.7	37.0	31.6	23.4
Black	14-15	30.4	66.8	0.0	2.8	0.0	0.0
	16-17	29.0	66.3	3.0	0.0	0.0	0.0
	18-19	0.0	12.9	44.6	42.5	0.0	0.0
	20-21	0.0	0.0	8.6	70.1	21.3	0.0
	22-24	0.0	2.5	0.0	60.6	23.9	12.9

students primarily from rural areas, was 649.

Similar differences are found for whites. Entering freshmen at traditionally white two-year colleges stood at 775; at senior colleges in the state system, 850; and at the universities (adjusting for black enrollees) at about 1000. Only 20 percent of Georgia counties, namely the large metro counties, provide more than two-thirds of the System's enrollments, about 80 percent of which are at the senior colleges and universities. In short, a majority of college enrollees come from a few urban counties.

It was noted earlier that Georgia was rapidly dropping in GrantThornton's *Climates* study due to weak educational performance. The study's most recent index, for 1986, uses education for two of its 21 factors, or for over 10 percent of the total score. One factor merges the high school and college graduation rates, and the high tech composition of the work force; Georgia ranked 40th out of 50 on this factor. A second factor incorporates the illiteracy rate, teachers' salaries, and spending on education; Georgia ranks 46th.

FINAL NOTE

It is possible that Georgia's dropout rates for "locals" is higher or lower than the ones cited in the Current Population Survey because net in-migration may improve or lessen these rates. Note that nearly half of Georgia's population growth since 1970 came from in-migration.

As the bottom line, Georgia needs a firm statistical basis for dealing with the dropout problem. From the data reported here, it is clear that recent news accounts have overstated the problem. Even so, it warrants careful review of our public policy for dealing with dropouts.

Rudolph A. White is professor of economics at The University of Georgia.

Part 2

Economic Development: New Roles and Resources for Universities

Marie Dent

In the first part of this article, which appeared in the last issue, the author described various applications of biotechnology and its potential impact on the Georgia economy. This half of her article details the state's biotech-related resources and the effects that commercialization of these resources may have on the state's economic future.

The Georgia Research Consortium promotes the collaborative efforts of Georgia's five leading research institutions to achieve a leadership role for the state in biotechnology. The Research Consortium institutions -- The University of Georgia, the Georgia Institute of Technology, Medical College of Georgia, Emory University, and Georgia State University -- have key strengths that can be catalyzed in potential cooperative efforts.

UNIVERSITY OF GEORGIA

The University probably possesses the largest concentration of resources and programs in biotechnology within the state. Its commitment to biotechnology is emphasized by the establishment of an integrated program in biological resources and biotechnology. The program focuses on six particular areas.

The Complex Carbohydrate Research Center, the first of its kind in the world, focuses on research in complex carbohydrates, or the plant hormones found in plant cell walls, which regulate such processes as plant growth and development, reproduction, and disease resistance.

The Center for Plant Cellular and Molecular Biology undertakes basic research which may lead to the development of herbicide-, stress-, and pathogen-resistant crops, crops with increased efficiency for conventional plant breeding, and reduction and/or elimination of nitrogen fertilizer costs.

The Center for Biological Resource Recovery focuses on enzymatic hydrolysis of cellulose, fermentation of biological resources to produce chemical feedstocks and metal transformations, including bioleaching, waste management, and the development of new strains of organisms capable of more efficient conversion of biological resources and transformation of metals.

The International Center for Plant and Animal Biotechnology responds to the need for focused communication and an information network between scientists involved in basic and applied research across the world. The center maintains and shares a computer-based storage and retrieval system of information generated by research and industry in plant and animal biotechnology, networks scientists with common interests, and answers requests for information.

The Center for Nitrogen Fixation and Metalloenzyme Studies concentrates on the function of enzymes that catalyze a variety of life-supporting reactions such as nitrogen fixation, sulfur metabolism, carbon monoxide metabolism, and hydrogen production.

The emerging Center for Excellence in Environmental Biotechnology exemplifies the university's belief in the importance of exploring the effects of biotechnology on the environment. The center will house the collaborative research of respected ecologists and scientists from several other disciplines in both risk assessment and product assessment of genetically engineered organisms.

Georgia Institute of Technology. Georgia Tech established a Research Center for Biotechnology in 1981 as a complement to the activities of its Bioengineering Center. The interdisciplinary approach taken by scientists in genetics, biophysics, and fermentation provides faculty and students with opportunities to research and develop products and processes from inception to the scale needed for industry. Research projects include microbial immobilization, alcohol extraction, waste water management, and petrochemical alternatives.

Medical College of Georgia. The biological sciences faculty members at the Medical College focus their efforts in five areas: neuroscience, sickle cell hemoglobins, human gene technology, endocrine action, and molecular pharmacology. Neuropharmacology applications of this research are seen in the study of herbicide and insecticide actions and the development of diagnostic tools and procedures.

Emory University. Emory places its emphasis on basic research in the life sciences with strong support through research grants and contract funds. It has targeted several biotechnology-related areas for further development: cell and developmental biology, molecular biology, immunology, bacterial and animal genetics, neurobiology and endocrinology. In addition, Emory has special interests in bioprocessing, particularly biomaterials, diagnostics and biochemical reagents.

Georgia State University. Over the last five years, Georgia State University has focused on strengthening its research programs and encouraging collaborative research among faculty. Scientists at Georgia State are involved in research in laser optics, molecular modeling, cancer research, nuclear magnetic resonance, and virology.

In addition to these established centers, UGA faculty members from several disciplines are involved in biotechnology-related research: recognized research in reproductive physiology at the College of Veterinary Medicine; scientists in microbiology, immunology, parasitology, and poultry science who are creating a vaccine for coccidiosis, which causes economic losses of $300 million to the poultry industry; and faculty in the School of Forest Resources, the College of Pharmacy, the College of Home Economics, and the College of Agriculture also carry out biotechnology-related research.

Close collaboration among Georgia's Research Consortium institutions holds the key to the overall success of any biotechnology developments in Georgia. Already, collaboration between the University of Georgia's College of Pharmacy, Emory University, and Yale University has resulted in a joint research project which may lead to the development of drugs to fight AIDS. Molecular geneticists at the University and at the Medical College of Georgia are advancing the scientific study of the heredity of diseases. The engineering faculty at Georgia Tech and scientists at Georgia are involved with biological firms attempting to establish more efficient, effective production methods for bioengineered products.

BIOTECH'S ECONOMIC IMPACT

Biotechnology will affect the long-term prospects for both job creation and growth potential in several ways. For Georgia to share in these returns, however, will require the joint commitment and collaboration of the governmental, business, and educational communities.

While some stock market analysts believe investors have shown overly optimistic confidence in the stock of the new biotechnology firms, firms such as Genentech have come to symbolize the awesome commercial potential of biotechnology.

Analysts believe that stock market prices will value highly those companies with proprietary positions on certain biologically produced products. Other positive signals include the movement of these new firms toward break-even or profitable levels, the resolution of patent issues, the acquisition of biotechnology-related firms by major drug companies (Bristol-Myers has purchased Genetic Systems and Eli Lilly acquired Hybritech), and the increase in joint ventures, particularly between drug companies and these new firms. Increasing stock prices reflect these favorable moves and have increased the ability of some bioscience companies to raise additional capital.

As companies race to obtain proprietary product and process knowledge, this increasingly fierce competition will lead to increased university-industry partnerships, a higher value placed by industry on research and development, and greater responsibility for universities which must creatively manage their newfound and unexpectedly profitable knowledge assets.

Significant effects of biotechnology on job creation are difficult to predict. The industry's youth, the lack of any employment trend data, the deficiency of meaningful categories in which to code labor data, and the pervasiveness of the biotechnologies in a number of industries make statistics difficult to obtain. Conservative estimates compiled by government sources from employment data obtained from 60 new biotechnology firms and 10 older firms involved in biotechnology-related activities indicate the creation of over 7,000 jobs. These figures do not include individuals employed to perform contract research (one firm employed 32 individuals in this capacity) nor do they include the employment increases resulting from additional manufacture and sales of supplies and equipment.

Currently, industries employing biotechnologies are capital intensive rather than labor intensive. Initially, it can be expected to give rise to individual entrepreneurs, self employment, and small business development. As the industry develops, and larger manufacturers enter the field, the effects on employment probably will become more significant. Another, more meaningful consideration, perhaps, is the question of wealth creation and the effects that increased profitability would have on the economy of the state. The long-term, cumulative effects will be much more substantial than immediate and direct outcomes.

Commercialization of high technology usually emanates from ideas spawned in smaller firms which excel in creatively developing technology. Such firms have generated nearly one-half of the major technical innovations in the last 30 years and have generated more employment growth than larger firms. Several factors lead to success in the commercialization of high technology: availability of incubator facilities, leading-edge technology, opportunities for contract research, local venture capital, other success stories in the area, and community support.

Incubator facilities, particularly when housed in an innovation center (or product development center), assist the entrepreneur in nurturing the creative idea he or she wishes to commercialize. Although the entrepreneurial team may be technically competent, successful commercialization requires support services such as managerial services, administrative support, business advice, and marketing skills which generally cannot be easily afforded by a start-up venture. Industrial proximity to research universities with leading-edge technology allows scientists to interact with business, thus speeding the process of technology transfer. Universities benefit from interactions with market-oriented firms and from the profits which accrue from licensing patents. Obviously, the role of venture capital is crucial, but the business skills and networking capabilities of financiers also provide resources necessary for developing and attracting new high technology firms. Successful models stimulate the location, relocation, and development of industry in a particular area and are important to developing a critical mass. Finally, a community's financial and intellectual support, and social acceptance of economic risk helps to cultivate an entrepreneurial spirit and a business climate conducive to the growth of high technology firms.

During the spring of 1987 a group of local businessmen announced the opening of a high technology park. The park will seek as tenants industrial concerns that have strong interest in the University of Georgia. The initial client is an international company that produces animal and human health care products; they will locate their U.S. headquarters in the park. At approximately the same time, an incubator began operations in the Small Business Development Center on the Georgia campus. Most of the tenants will be small start-up companies which will rely heavily on developing and marketing proprietary technologies of the University's Research Foundation. Concurrently, the Athens Innovation Center, a private, for profit corporation, announced its intent to locate a facility in Athens. These mechanisms will provide an avenue to stimulate and support faculty entrepreneurism, facilitate the transfer and development of commercial applications, and maintain innovations with Georgia for the enhancement of economic development. At the same time, the University will continue the cultivation and creation of knowledge in the basic sciences.

THE FUTURE

The research strengths of Georgia's universities and the state's natural resource base can combine to provide a competitive advantage for Georgia in the biotechnology marketplace. The contribution of Georgia's universities to the state's economic growth and development and achievement of a leadership position, however, will require continued collaboration of the academic community, particularly through the Research Consortium, and the state's governmental and industrial communities. The synergism created by continued emphasis on research in the basic sciences, university-industry interaction, and the nurturance of entrepreneurship will foster economic growth and development in the state as well as facilitate Georgia's leadership position in the creation, transfer, and commercialization of biotechnology. Rapidly changing technology, the high economic stakes, and the great number of participants make the game challenging. The question, however, is not one of participation; it is whether Georgia will lead or follow.

Sixth in a continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

The Columbus Region

The Columbus region is located in the Southwest portion of Georgia. Major towns and cities in the region include Hamilton, Cusseta, and Columbus. Columbus College and Fort Benning Military Reservation also are located in this region.

The largest industrial employers appear to be the food; textiles; lumber and wood products; printing and publishing; stone, clay, and glass; and non-electrical machinery industries (Table 1). Of these, only the food and textiles industries experienced little growth in statewide employment between 1980 and 1986. The food industry's employment growth was only 3 percent during this period, and the textiles industry suffered a decline in statewide employment of 12.8 percent although recent evidence suggests a turnaround in this sector. Employment growth was strong in the lumber and wood products; printing and publishing; stone, clay, and glass; and non-electrical machinery industries, however. Between 1980 and 1986, the statewide employment growth for these industries was 22.3 percent, 51.9 percent, 19.4 percent, and 15.5 percent, respectively. Most industry in this region is located in Muscogee County.

Employment was fairly stable between 1980 and 1986 (Table 2). The civilian labor force unemployment rate averaged 7.1 percent between 1981 and 1985 as compared to 6.8 percent for the state as a whole, and ranged from a high of 7.9 percent in 1982 to a low of 6.2 percent in 1984. The civilian labor force grew at a 2 percent annual compounded rate between 1981 and 1985, compared to a 2.5 percent growth rate for the state. The educational level of this region's labor force is relatively high, with 64.1 percent of its labor force having at least a high school education. This compared favorably with the statewide educational level, since approximately 56.4

Table 1

Number of Manufacturing Plants by Employment, 1982
Columbus Region

	Number of Employees				Plants
	1-19	20-99	100-249	Over 250	Total
Food and kindred products	6	3	5	6	20
Tobacco manufactures	0	0	0	0	0
Textile mill products	3	1	2	8	14
Apparel and other textile products	4	3	0	0	7
Lumber and wood products	29	4	1	0	34
Furniture and fixtures	1	2	0	0	3
Paper and allied products	0	2	1	0	3
Printing and publishing	12	5	1	1	19
Chemicals and allied products	2	2	1	0	5
Petroleum and coal products	0	0	0	0	0
Rubber and plastics products	1	1	0	1	3
Leather & leather products	0	0	0	0	0
Stone, clay, and glass products	9	5	1	0	15
Primary metal industries	0	2	0	2	4
Fabricated metal products	10	3	1	0	14
Non-electrical machinery	14	4	0	1	19
Electric and electronic equipment	1	2	1	2	6
Transportation equipment	3	1	0	0	4
Instruments and related products	2	1	0	0	3
Misc. manufacturing industries	2	2	0	0	4
Total	99	43	14	21	177

Source: U.S. Department of Commerce, *Census of Manufacturing*, 1982.

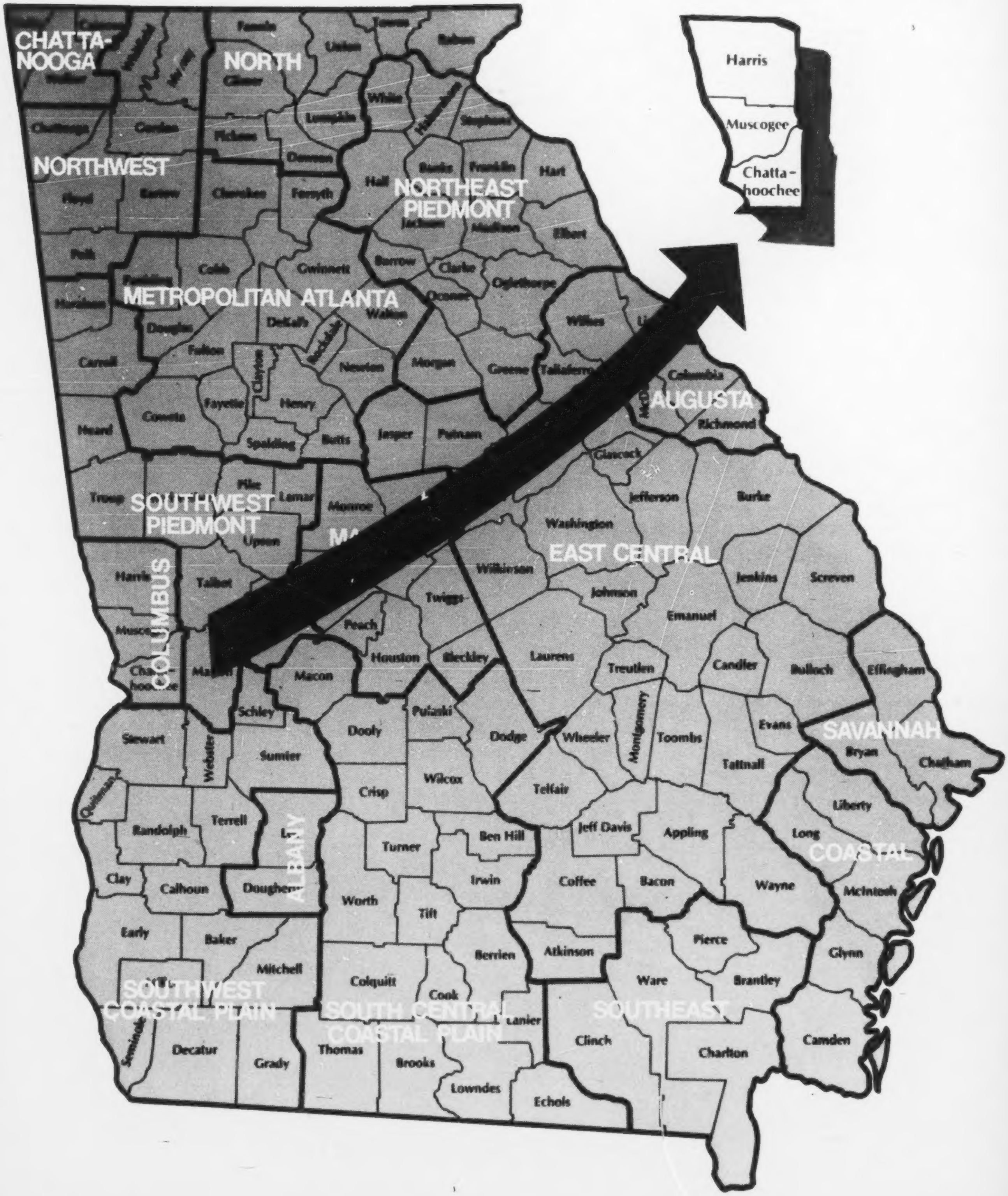
Harris
Muscogee
Chatta-hoochee
CHATTA-NOOGA
Walker
NORTH
Fannin
Union
Towns
Rabun
Gilmer
White
Lumpkin
Habersham
Stephens
Pickens
Dawson
Chattooga
Gordon
NORTHWEST
Floyd
Bartow
Cherokee
Forsyth
Hall
Banks
Franklin
Hart
NORTHEAST PIEDMONT
Jackson
Madison
Elbert
Polk
Paulding
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Haralson
METROPOLITAN ATLANTA
Oconee
Walton
DeKalb
Rockdale
Douglas
Wilkes
Lincoln
Fulton
Clayton
Newton
Morgan
Greene
Taliaferro
Carroll
Columbia
Fayette
Henry
AUGUSTA
McDuffie
Richmond
Coweta
Heard
Jasper
Putnam
Spalding
Butts
Glascock
Troup
Pike
Lamar
Monroe
SOUTHWEST PIEDMONT
Jefferson
Burke
Washington
Upson
MA
EAST CENTRAL
Wilkinson
Harris
COLUMBUS
Talbot
Jenkins
Screven
Johnson
Twiggs
Emanuel
Muscogee
Peach
Chattahoochee
Marion
Houston
Bleckley
Laurens
Treutlen
Candler
Bulloch
Effingham
Macon
Schley
Dooly
Pulaski
Dodge
Wheeler
Montgomery
Toombs
Evans
SAVANNAH
Bryan
Chatham
Stewart
Webster
Sumter
Wilcox
Crisp
Telfair
Tattnall
Quitman
Liberty
Randolph
Terrell
Lee
ALBANY
Ben Hill
Jeff Davis
Appling
Long
Turner
COASTAL
Clay
Calhoun
Dougherty
Irwin
Coffee
Bacon
Wayne
McIntosh
Worth
Tift
Early
Baker
Berrien
Atkinson
Pierce
Glynn
Mitchell
Miller
Colquitt
Cook
Ware
Brantley
SOUTHWEST COASTAL PLAIN
SOUTH CENTRAL COASTAL PLAIN
Lanier
SOUTHEAST
Seminole
Decatur
Grady
Thomas
Brooks
Clinch
Charlton
Camden
Lowndes
Echols

Table 2

Civilian Labor Force Columbus Region

Year	Employed	Unemployed	Total
1980	73,068	5,534	78,602
1981	73,618	5,581	79,199
1982	72,301	6,242	78,543
1983	73,159	5,708	78,867
1984	76,232	5,082	81,314
1985	79,535	6,086	85,621
1986	80,964	5,679	86,843

Source: Georgia Department of Labor, Labor Information Systems.

percent of Georgia's civilian labor force has a high school education.

The region forms parts of the Columbus retail trade area, which borders the LaGrange, Atlanta, Macon, and Albany retail trade areas. Retail sales are influenced by the Columbus metropolitan area. Muscogee County, with its two large malls, accounted for 64 percent of the trade area's sales in 1983.

Residential construction showed an upward trend between 1980 and 1986 (Table 3). It reached its low for the six-year period in 1981, primarily because of the high interest rates that year. During 1983, total unit residential construction in the region was 1,366 units, an increase of 147 percent over 1982's construction level. This high level was not sustained into 1984; however, construction levels from 1984 through 1986 remained in the 1,000 to 1,400 units range.

Industrial construction was very volatile between 1980 and 1986, and values ranged between a low of $1 million in 1983 and a high of $17.4 million the year before. Between 1983 and 1985 values steadily grew from $1 million to $4.2 million. This growth did not persist into 1986 as the value of industrial construction in that year declined to $1.6 million. Office, bank, and professional buildings construction proliferated during the period.

Retail store construction also grew over the seven years, increasing from $0.9 million in 1980 to $10.1 million in 1985. Not even the recession of 1980 - 1982 was able to halt this strong growth.

Table 3

Building Permits Columbus Region

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	310	516	4,225,066	1,437,718	940,215
1981	235	369	11,592,625	3,307,805	1,627,401
1982	264	553	17,432,000	2,176,553	2,490,264
1983	551	1,366	1,024,868	3,505,851	4,502,317
1984	463	1,081	3,284,903	7,856,237	10,022,748
1985	517	1,329	4,203,135	5,800,236	10,125,721
1986	685	1,062	1,629,649	14,478,747	4,616,572
Total	2,340	5,214	41,762,597	24,084,400	29,708,666

Source: U.S. Department of Commerce, Bureau of the Census.

GEORGIA BUSINESS STATISTICS

SERIES	OCT 1987	SEPT 1987	AUG 1987	OCT 1986
Georgia Leading Indicators Index[1] (1969=100)	181.97	182.09	180.91	171.87
Georgia Coincident Indicators Index[2] (1969=100)	545.10	543.17	541.63	518.90
Nonagricultural Employment[2] (thousands)	2,774.7	2,762.0	2,753.4	2,727.9
Manufacturing Employment[2] (thousands)	572.8	571.9	570.4	567.8
Average Weekly Earnings, Manufacturing[2] (dollars)	359.12	354.35	345.69	341.53
Help Wanted Advertising, Atlanta Index[3] (1967=100)	279	283	268	270
Taxable Retail Sales[4] ($ millions)	3,330.2	3,757.5	3,638.5	3,152.7
Building Permits[5]				
Residential Housing Units, Private (thousands)	4.7	6.6	5.2	6.2
Value of Residential Housing ($ thousands)	286,596	325,458	290,286	339,514
Value of Nonresidential Construction ($ thousands)	258,714	180,170	258,171	204,732[p]
Industrial Buildings	28,548	11,061	10,561	21,034
Office, Bank and Other Professional Buildings	34,156	27,555	37,734	37,563
Stores and Other Mercantile Buildings	66,122	44,991	53,350	57,897
Other	129,888	96,563	156,526	88,238
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (December 1977 = 100)	184.7	184.0	183.2	177.5
South/Population more than 1,200,000[a]	185.4	184.7	184.0	–
South/Population 450,000 - 1,200,000[a]	186.7	186.3	184.8	–
South/Population 50,000 - 450,000[a]	182.6	182.0	181.7	–
South/Population Less than 50,000[a]	182.1	181.1	180.0	–
Atlanta (1967=100)[b]	–	–	–	339.9
Prices Received by Farmers, Georgia Index[7] (1977=100)	121	129[r]	125[r]	131
	1987:III	**1987:II**	**1987:I**	**1986:III**
Total Personal Income[8] ($ millions)	87,799	86,816	85,383	82,676

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[a] Group size revised as of January 1, 1987; 1986 data are for June.

[b] Atlanta index is average of first 6 months of the calendar year (Jan. - June, 1986 and 1987).

[p] Imputation greater than 25%.

[r] Revised.

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GEORGIA BUSINESS AND
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Disposable Personal Income in Southeastern States, 1969-1986

Suzanne A. Lindsay

Annual estimates of total personal income (TPI) and per capita personal income (PCPI) released by the U.S. Department of Commerce, Bureau of Economic Analysis, frequently are used as indicators of economic conditions in states and local areas. Less well known are the BEA's estimates of disposable personal income (DPI), which measure the personal income available to residents of a given state after personal tax and nontax payments have been deducted from their total personal income. Estimates of per capita disposable personal income (PCDPI) allow population-adjusted comparisons between states, regions, and the nation.

The BEA's August, 1987 estimates of DPI and PCDPI for 1969-1986 offer an after-tax picture of the relative growth of southeastern states, including Georgia, and thus indicate changes in personal income actually available for spending or saving. For residents of the southeastern region as a whole, in both years disposable personal income represented a slightly larger percentage of total personal income than it did for all U.S. residents, although the difference diminished to near-equivalence between 1969 and 1986 (Table 1). Within the southeastern states, West Virginia had the highest proportion of DPI to TPI in 1986 (89.6 percent); Georgia, at 82.7 percent (down from 85.1 percent in 1969) had the lowest. As Table 2 shows, the differences in proportion are the opposite of the differences in real or inflation-adjusted growth in the amount of disposable personal income in the two states; Georgia's annual average rate of growth in real DPI for 1969-86 was 3.7 percent, second only to Florida's (5.3 percent) in the Southeast, and above the rates for the region as a whole (3.6 percent) and the U.S. (2.6 percent). At 2.3 percent, West Virginia's growth rate was the lowest in the region.

The distribution of the southeastern region's disposable personal income shifted among its twelve states over the seventeen-year period for which data are currently available (Table 3). Florida's share increased by 5.6 percentage points, to 23.6 percent of the regional total. Georgia's share increased slightly from 10.7 percent to 10.9 percent, as did Virginia's (from 12 percent to 12.1 percent). Arkansas' share held steady, and the other states of the area lost relative shares despite their absolute real growth. These patterns of proportion, absolute growth, and relative share reflect the emergence of Florida, Virginia, and Georgia, with North Carolina (which had 10.7 percent of the Southeast's DPI in 1986), as the economic leaders of the region.

PERSONAL INCOME CONCEPTS

Such patterns also reflect the way disposable personal income is calculated and, to an extent difficult to determine, tax structures in individual states and the region. *Total personal income* is defined as all the income received from all sources by, or on behalf of, all the residents of an area. It is the sum of wage and salary disbursements, other labor income, proprietors' income, rental income of persons, personal dividend income, personal interest income, and transfer payments, minus personal contributions for social insurance. *Disposable personal income* is calculated by removing tax and nontax payments from the total personal income base. Tax payments include both personal tax payments (net of refunds) that are not business expenses, and other payments to government that are treated as taxes. Specifically, personal taxes include income, estate and gift, personal property, and selected license taxes. They do not include three items: personal contributions to social insurance, which are not considered taxes at all; real estate taxes, which are regarded as a business expense and are deducted from gross rent when total personal income is calculated; and sales taxes, which are considered part of personal consumption expenditures. Nontax payments include passport fees, fines and penalties, donations, tuition and fees paid to governmentally operated schools and hospitals, and other miscellaneous revenues.

The *residential* character of the disposable personal income concept is particularly important to an understanding of the direction and size of changes over time. The data do not describe the disposable income *generated* in an area, but rather that *received* by its residents, whose income may have originated in several different states and regions. Similarly, the residents' tax and nontax payments to state and local governments may have been made to a variety of states and localities, and cannot be equated with the governmental revenue of the residential area alone. For these reasons, changes in total state and local tax and nontax payments may reflect changes in the tax structures for many areas, as well as general economic trends. Changes in the proportion of such payments made to the federal government are somewhat easier to understand, since the federal tax structure applies to all residential areas — for example, when tax brackets are enlarged or narrowed, the changes apply to the residents of all states and regions, although the size of the impact will vary from state to state.

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PERSONAL TAX AND NONTAX PAYMENTS

Over time, the amounts and distribution of personal tax and nontax payments have indeed changed for residents of the nation, region, and Georgia. Economic growth has greatly increased absolute amounts, even after inflation is considered. Between 1969 and 1986, real personal tax and nontax payments made by Georgia residents grew at an annual average rate of 4.8 percent, compared to 3.8 percent for the Southeast and 2.3 percent for the U.S. (Table 4). On an annual average basis, Georgians' payments to the federal government increased at a rate of 3.8 percent over the period; to state governments, at 7.7 percent; and to local governments, at 8.2 percent.

Individual income taxes paid to governments accounted for the great bulk of the payments in both years, as Table 5 depicts, but the trends differed at the federal and state levels. As a result of revisions in the federal income tax law , the proportion of total tax and nontax payments represented by such payments to the federal government declined for residents of the U.S. as a whole, the region, and Georgia; the proportion represented by income tax payments to states increased, almost doubling for Georgia residents. Nontax payments made to local governments also increased substantially as a share of the total, although their absolute amounts remained relatively small.

PER CAPITA PERSONAL INCOME

Per capita disposable personal income data allow direct comparisons of the disposable income available to residents of the U.S., the Southeast, and individual states, independent of population size, since they are prepared by dividing the disposable personal income of each area by its resident population. Table 6 highlights Georgia's nominal PCDPI growth from $2,680 in 1969 to $11,122 in 1986, a level above that for the southeast as a whole and the third highest (behind Florida and Virginia) among the individual southeastern states. Georgia's annual average rate of growth in PCDPI for the period stood at 8.7 percent, matching that of the region and exceeding the national rate of 8.3 percent; its rate was again the third highest of the region, behind those of Virginia and Arkansas. Arkansas' position illustrates the interdependence of population and income in the per capita estimates; although the absolute value of its PCDPI fell well below Georgia's, the total disposable personal income of its

Table 1

Disposable Personal Income and Its Relation to Total Personal Income in the U.S., Southeast. and Southeastern States, 1969 and 1986

Area	Disposable Personal Income (Millions of $)		DPI as % of Total Personal Income	
	1969	1986	1969	1986
United States	650,969	3,018,521	84.9	85.5
Southeast	113,880	623,033	86.0	85.7
Alabama	8,077	38,869	86.2	84.6
Arkansas	4,349	23,384	87.4	89.0
Florida	20,514	146,817	85.8	85.9
Georgia	12,196	67,890	85.1	82.7
Kentucky	8,030	37,035	85.8	88.4
Louisiana	9,098	44,232	87.5	87.8
Mississippi	4,664	22,037	88.7	86.4
North Carolina	12,960	66,765	85.7	84.8
South Carolina	6,223	32,702	87.1	85.7
Tennessee	9,920	49,925	86.7	86.6
Virginia	13,707	75,191	84.4	84.3
West Virginia	4,144	18,186	85.9	89.6

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "Disposable Personal Income, by States and Regions", August, 1987. Percentages computed by Division of Research.

residents grew much faster than the number of residents, resulting in a high per capita growth rate.

Gains in inflation-adjusted per capita disposable income were much less dramatic. On this basis, Georgia's PCDPI rose from $2,441 to $3,387, at an annual average rate of growth of almost 2 percent. Georgians had real per capita disposable incomes level with those for the Southeast as a whole, but below those for the nation in both 1969 and 1986. As a percent of the national average, however, both the region and Georgia showed substantial improvement (Table 7). Per capita disposable income for the southeast stood at 81 percent of the national average in 1969; by 1986 it had risen to 87 percent. Georgia's PCDPI rose from 83 percent of the national average to 89 percent over the same period, and the state stood 31st nationally in 1986 . Two southeastern states matched the national average in 1986: Virginia, at 104 percent (ranked thirteenth), and Florida, at 100 percent (ranked nineteenth). The extremes present in the region are illustrated by the seven states that ranked fortieth or below in 1986; these included Mississippi, whose residents had the lowest per capita disposable income in the country.

Per capita disposable personal income estimates offer a picture of the Southeast and of Georgia consistent with other personal income data. Over time, the region has advanced steadily, and Georgia has become one of its leaders in income growth. Over half its states, however, still lag well behind the rest of the country, resulting in the lowest regional PCDPI in the country in 1986. At the same time, the Southeast's total disposable personal income increased at an annual average rate of 10.5 percent between 1969 and 1986 (before adjustment for inflation), placing it third in rate of growth among all regions, behind only the Southwest and Rocky Mountain regions. The challenge for the region is to extend the rapid advances of Florida, Virginia, and Georgia to the states that, both historically and currently, have yet to share fully in economic growth.

Table 2

Annual Average Rates of Growth, 1969-1986, In Real Disposable Personal Income, U.S., Southeast, and Southeastern States

Area	Real DPI (millions of 1967$) 1969	1986	AARG, 1969-1986
U.S	592,868	919,160	2.61
Southeast	103,716	189,718	3.62
Alabama	7,356	11,836	2.84
Arkansas	3,961	7,121	3.51
Florida	18,683	44,707	5.27
Georgia	11,107	20,673	3.72
Kentucky	7,313	11,277	2.58
Louisiana	8,286	13,469	2.90
Mississippi	4,248	6,710	2.73
North Carolina	11,803	20,330	3.25
South Carolina	5,668	9,958	3.37
Tennessee	9,035	15,202	3.11
Virginia	12,484	22,896	3.63
West Virginia	3,774	5,538	2.28

Source: Based on data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "Disposable Personal Income, For States and Regions," August, 1987. Disposable personal income estimates deflated by U.S. all items average, Consumer Price Index for All Urban Consumers (1967 = 100) and annual average rates of growth computed by Division of Research.

Table 3

State Disposable Personal Income as a Percentage of Southeastern Region DPI, 1969 and 1986

Area	DPI as % of Southeast DPI 1969	1986
Southeast	100.0	100.0
Alabama	7.1	6.2
Arkansas	3.8	3.8
Florida	18.0	23.6
Georgia	10.7	10.9
Kentucky	7.1	5.9
Louisiana	8.0	7.1
Mississippi	4.1	3.5
North Carolina	11.4	10.7
South Carolina	5.5	5.2
Tennessee	8.7	8.0
Virginia	12.0	12.1
West Virginia	3.6	2.9
Southeast as % of U.S.	17.5	20.6

Source: Based on data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "Disposable Personal Income, for States and Regions," August, 1987. Percentages computed by Division of Research. Percentages may not add to 100 because of rounding.

Table 4

Annual Average Rate of Growth in Real Tax and Nontax Payments, 1969-1986, by Receiving Government, for the U.S., Southeast, and Georgia

	Annual Average Rate of Growth (%)				Annual Average Rate of Growth (%)		
Recipient/Tax	U.S.	S.E.	GA.	Recipient/Tax	U.S.	S.E.	GA.
Personal Tax and Nontax Payments (total)	2.33	3.79	4.82	State Governments	5.12	5.82	7.65
Federal Government (net of refunds)	1.47	2.95	3.76	Local Governments	5.87	7.76	8.18
				State and Local Personal Property Taxes	-1.33	-0.63	-0.07

Source: Based on data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "State Tax and Nontax Payments," August, 1987, deflated by the U.S. all items average, Consumer Price Index for All Urban Consumers (1967=100). Deflated values and annual average rates of growth computed by Division of Research.

Table 5

Percentage Distribution of Personal Tax and Nontax Payments in the U.S., Southeast, and Georgia, 1969 and 1986

	U.S.		Southeast		Georgia	
Type of Payment/Tax	1969	1986	1969	1986	1969	1986
Personal Tax and nontax payments	100.00	100.00	100.00	100.00	100.00	100.00
Fed Government (net of refunds)	81.70	70.79	80.38	70.10	78.65	66.26
Individual income taxes	77.88	68.38	77.05	67.79	75.65	64.76
Fiduciary income taxes	0.68	0.89	0.69	0.90	0.57	0.51
Estate and gift taxes	2.22	1.39	2.57	1.25	2.37	0.86
Nontax payments	0.05	0.14	0.07	0.16	0.06	0.13
State Governments	12.66	20.01	12.34	17.17	11.26	17.73
Individual income taxes	7.46	13.64	6.43	10.53	7.20	14.25
Death and gift taxes	0.87	0.52	0.57	0.45	0.30	0.17
Motor vehicle taxes	1.56	1.18	1.81	1.19	1.17	0.48
Other taxes	0.16	0.14	0.20	0.15	0.11	0.15
Nontax payments	2.61	4.53	3.32	4.86	2.49	2.68
Local Governments	4.95	8.83	6.53	12.37	9.11	15.58
Individual income taxes	0.99	1.29	0.30	0.24	0.00	0.00
Motor vehicle taxes	0.07	0.05	0.11	0.06	0.02	0.00
Other taxes	0.20	0.21	0.28	0.23	0.26	0.15
Nontax payments	3.69	7.28	5.83	11.84	8.83	15.43
State & Local Personal Property Taxes	0.69	0.37	0.75	0.36	0.98	0.43

Source: Based on U.S. Department of Commerce, Bureau of Economic Analyis, Regional Economic Information System, "State Tax and Nontax Payments," August, 1987. Percentages computed by Division of Research.

Table 6

Nominal and Real Per Capita Disposable Personal Income, U.S., the Southeast, and Southeastern States, 1969 and 1986, with Annual Average Rates of Growth

	Nominal PCDPI			Real PCDPI		
Area	1969 ($)	1986 ($)	AARG (%) 1969-86	1969 (1967$)	1986 (1967$)	AARG (%) 1969-86
U.S.	3,234	12,521	8.29	2,945	3,813	1.53
Southeast	2,622	10,878	8.73	2,388	3,312	1.94
Alabama	2,348	9,591	8.63	2,138	2,921	1.85
Arkansas	2,273	9,857	9.01	2,070	3,002	2.21
Florida	3,089	12,576	8.61	2,813	3,829	1.83
Georgia	2,680	11,122	8.73	2,441	3,387	1.95
Kentucky	2,511	9,933	8.43	2,287	3,025	1.66
Louisiana	2,514	9,827	8.35	2,290	2,992	1.59
Mississippi	2,101	8,395	8.49	1,913	2,556	1.72
North Carolina	2,576	10,543	8.64	2,346	3,210	1.86
South Carolina	2,421	9,685	8.50	2,205	2,949	1.72
Tennessee	2,545	10,395	8.63	2,318	3,165	1.85
Virginia	2,971	12,993	9.07	2,706	3,956	2.26
West Virginia	2,373	9,479	8.49	2,161	2,886	1.72

Source: Nominal data from U.S. Department of Commerce, Bureau of Economic Analysis, "State Personal Income, 1969-86: Revised Estimates," Survey of Current Business, Vol. 67, No. 8 (August, 1986), Table 2, pp. 46-47. Real per capita disposable personal income (deflated by U.S. CPI-U, all items average, 1967=100) and real annual average rates of growth computed by Division of Research.

Table 7

Per Capita Disposable Personal Income in the Southeastern Region: 1986 Rankings and Percentage of the U.S. Average, 1969 and 1986

	Percent of National Average		Rank in U.S.
Area	1969	1986	1986
Southeast	81	87	—
Alabama	73	77	48
Arkansas	70	79	43
Florida	96	100	19
Georgia	83	89	31
Kentucky	78	79	40
Louisiana	78	78	45
Mississippi	65	67	50
North Carolina	80	84	37
South Carolina	75	77	46
Tennessee	79	83	39
Virginia	92	104	13
West Virginia	73	76	49

Source: U.S. Department of Commerce, Bureau of Economic Analysis, "State Personal income, 1969-86: Revised Estimates," Survey of Current Business, Vol. 67, No. 8 (August, 1986), Table 2, pp. 46-47.

Seventh in a
continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

The East Central Region

The East Central region is composed of 33 counties and encompasses the cities of Lincolnton, Washington, Warrenton, Sparta, Milledgeville, Waynesboro, Sylvania, Dublin, Douglas, Statesboro, Irwinton, and Vidalia. Two colleges — Georgia Southern and Georgia College — are located in the area. The region also includes the Oconee National Forest.

The region's industrial base is varied, but the most predominant employers are the food; textiles; apparel; lumber; printing; stone, clay, and glass; fabricated metals; and non-electrical machinery industries. The lumber and wood products industry accounts for 49 percent of the area's manufacturing plants (Table 1).

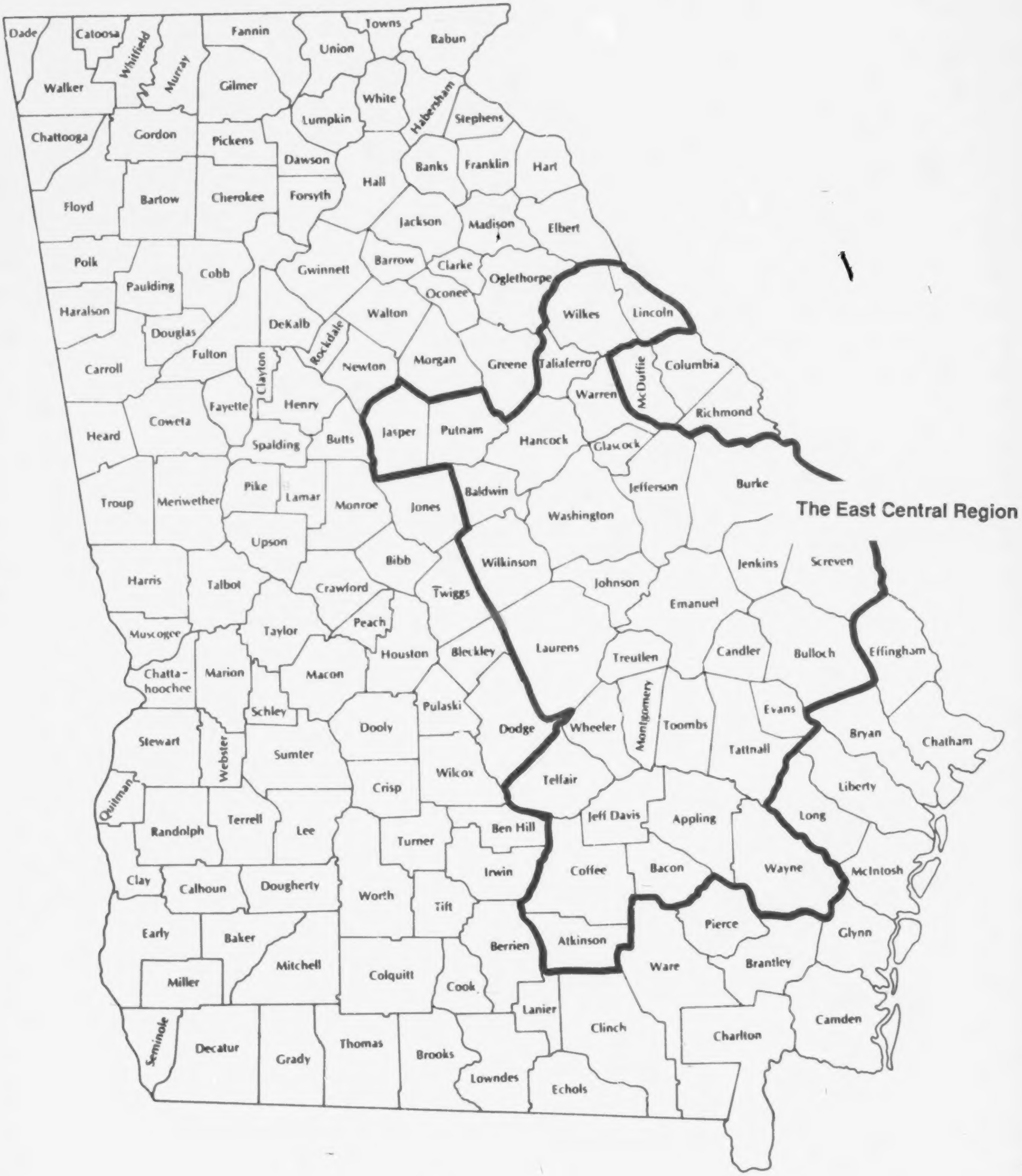
Four of the dominant industries (food, textiles, apparel, and fabricated metals) experienced a low statewide growth in employment during 1980 through 1986. The food and fabricated metals industries' statewide employment increased 3 percent and 0.9 percent, respectively. The textiles and apparel industries experienced a respective decline in statewide employment of 12.8 percent and 1.8 percent during 1980 through 1986, although there are some signs of a turnaround. The concentration of employment in the textiles and apparel industries appears to be greatest in Bacon, Jeff Davis, Johnson, Lincoln, Screven, Treutlen, and Warren counties.

Table 1

East Central Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
	1-19	20-99	100-249	Over 250	Total
Food and kindred products	35	17	1	3	56
Tobacco manufactures	0	0	0	0	0
Textile mill products	1	4	11	10	26
Apparel and other textile products	12	40	32	19	103
Lumber and wood products	366	50	15	2	433
Furniture and fixtures	3	2	3	1	9
Paper and allied products	0	2	1	1	4
Printing and publishing	53	7	0	0	60
Chemicals and allied products	10	3	0	1	14
Petroleum and coal products	0	0	0	0	0
Rubber and plastics products	7	2	1	0	10
Leather & leather products	0	1	0	0	1
Stone, clay, and glass products	33	4	3	0	40
Primary metal industries	1	0	0	0	1
Fabricated metal products	17	17	5	3	42
Machinery, except electrical	42	5	5	4	56
Electric and electronic equipment	2	1	1	2	6
Transportation equipment	5	1	0	1	7
Instruments and related products	0	2	0	1	3
Misc. manufacturing industries	6	1	0	0	7
Total	593	159	78	48	878

Source: U.S. Department of Commerce, *Census of Manufacturing*, 1982.


The East Central Region

Dade
Catoosa
Whitfield
Murray
Fannin
Towns
Union
Rabun
Walker
Gilmer
White
Habersham
Stephens
Lumpkin
Chattooga
Gordon
Pickens
Dawson
Banks
Franklin
Hart
Hall
Floyd
Bartow
Cherokee
Forsyth
Jackson
Madison
Elbert
Polk
Paulding
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Haralson
Oconee
Wilkes
Lincoln
Walton
DeKalb
Douglas
Rockdale
Fulton
Carroll
Clayton
Newton
Morgan
Greene
Taliaferro
McDuffie
Columbia
Coweta
Fayette
Henry
Warren
Richmond
Jasper
Putnam
Heard
Butts
Hancock
Spalding
Glascock
Pike
Burke
Troup
Meriwether
Lamar
Monroe
Jones
Baldwin
Jefferson
Washington
Upson
Harris
Talbot
Bibb
Wilkinson
Jenkins
Screven
Crawford
Johnson
Twiggs
Emanuel
Muscogee
Taylor
Peach
Houston
Bleckley
Laurens
Treutlen
Candler
Bulloch
Effingham
Marion
Chatta-hoochee
Macon
Schley
Pulaski
Evans
Dooly
Dodge
Wheeler
Montgomery
Toombs
Stewart
Bryan
Chatham
Sumter
Tattnall
Webster
Wilcox
Telfair
Crisp
Quitman
Liberty
Terrell
Randolph
Lee
Jeff Davis
Appling
Long
Ben Hill
Turner
Irwin
Coffee
Bacon
Wayne
McIntosh
Clay
Calhoun
Dougherty
Worth
Tift
Early
Baker
Pierce
Glynn
Atkinson
Berrien
Mitchell
Brantley
Miller
Colquitt
Cook
Ware
Lanier
Clinch
Camden
Charlton
Seminole
Decatur
Grady
Thomas
Brooks
Lowndes
Echols

The industries in the East Central region which experienced a substantial increase in statewide employment between 1980 and 1986 were the lumber and wood products; printing and publishing; stone, clay, and glass; and nonelectrical machinery industries. Between 1980 and 1986, these industries gained 22.3 percent, 51.9 percent, 19.4 percent, and 15.5 percent, respectively. The 400 lumber and wood products plants provides substantial employment. The stone, clay, and glass industries are located primarily in Washington, Wilkinson, and Jefferson Counties.

Table 2

Civilian Labor Force
East Central

Year	Employed	Unemployed	Total
1980	144,227	11,937	156,164
1981	148,545	11,574	160,119
1982	152,190	14,864	167,054
1983	150,442	14,547	164,989
1984	154,270	12,593	166,863
1985	175,885	15,297	191,182
1986	181,699	14,564	196,263

Source: Georgia Department of Labor, Labor Information Systems.

Between 1981 and 1985, the civilian labor force unemployment rate for the region averaged 8.1 percent compared to 6.8 percent for the state as a whole (Table 2). Between 1980 and 1986, the region's unemployment rate ranged from a low in 1981 of 7.2 percent to a high in 1982 of 8.9 percent. The civilian labor force grew at an annual compounded rate of 4.5 percent between 1981 and 1985, compared to a 2.5 percent growth rate for the state as a whole. This region's unemployment rate consistently has been higher than the statewide unemployment rate, which may be related to the fact that only 40 percent of the region's labor force has at least a high school education.

The East Central region forms part of the Augusta, Atlanta, Macon, Waycross, and Savannah retail trade areas. There are three large malls located in Baldwin, Laurens, and Bulloch counties.

As Table 3 shows, residential construction was fairly stable between 1980 and 1986. During this period, construction ranged from a high of 1,444 units in 1983 to a low of 894 units in 1985. In 1981, there was an increase in residential construction despite the record high interest rates of that year. Following the residential construction peak in 1983, the level declined two consecutive years. In 1986, however, residential construction increased 33 percent to 1,187 units.

Nonresidential construction was dominated by retail store construction between 1980 and 1986. 1981 and 1982 were the only years during the six-year period in which the value of retail store construction did not exceed that of industrial and office construction. Retail construction reached its lowest level ($2 million) in 1981, but following that year it established an upward trend. By 1985, retail store construction had peaked at $11.9 million.

Industrial construction has risen gradually between 1982 and 1986. The level of industrial construction ranged from a low in 1980 of under $1 million to a high in 1986 of $4.5 million. This represented an annual growth rate of 32 percent over the six years between 1980 and 1986.

Office, bank, and professional buildings construction varied within a narrow range of $2 million to $4.4 million between 1980 and 1986. The level of construction reached its peak for the period in 1982 with a total value of $4.4 million. Two consecutive years of decline followed. In 1985, the region experienced an increase in office construction but this new growth was not sustained into 1986.

Table 3

Building Permits
East Central

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	793	908	$ 837,378	$2,039,297	$ 5,903,673
1981	700	1,164	1,494,798	2,048,651	2,026,599
1982	683	1,044	1,168,042	4,360,379	3,540,680
1983	933	1,444	1,321,829	3,002,021	7,065,073
1984	751	1,307	1,822,336	2,558,069	6,010,869
1985	561	894	2,759,408	3,774,057	11,882,950
1986	747	1,187	4,459,033	2,447,308	9,420,103
Total	5,168	7,948	$13,862,824	$20,229,782	$45,849,947

Source: U.S. Department of Commerce, Bureau of the Census.

Recent Real Estate Developments

Lina Echeverri

A good leading indicator of the residential construction sector is the number of housing units authorized by building permit. In addition, they are very responsive to economic conditions and 1987 was characterized by volatile interest rates, large fiscal and trade deficits, uncertainty about the future, and, finally, the stock market crash at the end of October. Preliminary data for housing units authorized in 1987 show a decline of 14.5 percent in the total number of permits issued in Georgia. This downturn followed six years of continuous expansion. The largest growth occurred in 1982 and 1983 when the number of housing permits escalated 29.1 and 70.1 percent, respectively. Over the next three years, growth continued at slower rates of 4.2, 4.1, and 5.1 percent.

The decline in 1987 was caused mainly by a steep decrease in multi-family structures, which suffered from the highest rental vacancy rates in 25 years and a lack of incentives for apartment construction due to changes in the tax structure. Multi-family permits issued dropped from 26,191 in 1986 to 17,627 permits issued in 1987, a loss of 32.7 percent. This effect was augmented by a decline in single housing units authorized by permit which decreased 5.2 percent from 50,705 issued in 1986 to 48,093 issued in 1987.

Quarterly figures are posted in Table 1. In the third quarter of 1987, the total number of permits declined 7.2 percent and in the fourth quarter they dipped 23.1 percent. This drop may be a preliminary aftermath of the October crash.

Overall, most of the metropolitan areas ended the year with a sharp decline in the number of total residential permits. The exceptions were Chattanooga and Columbus where the permits issued increased 59.1 and 13.2 percent, respectively. The number of housing units authorized in Albany, Athens, Atlanta, Augusta, Macon, and Savannah dropped 30, 26.6, 17, 55.9, 26.8, and 19.9 percent, respectively.

Quarterly figures for the metropolitan areas showed a mixed performance. In the third quarter, the number of permits issued in Chattanooga and Savannah rose 106.5 and 43.4 percent, respectively, while they dropped in the rest of the MSAs. In the fourth quarter, most of the metropolitan areas showed a decline in the number of permits issued, with the exceptions of Chattanooga and Albany where they increased 47.6 and 22.8 percent.

Atlanta accounted for 67.6 percent of the total number of housing units authorized in Georgia, 13.3 percent of total permits were issued in the other metropolitan areas, and the remaining 19.1 percent were issued outside the metro areas of Georgia.

At the county level, Cobb County issued 9,332 housing permits in 1987, the largest number in the state. It was followed by Fulton and Gwinnett counties which issued 7,087 and 6,248 permits, respectively. Cobb County also led with the most single and multi-family permits issued.

Another insight to the construction market is given by the dollar value of the housing units authorized. As Table 2 illustrates, overall, the real value of permits authorized in Georgia dropped 4.6 percent in 1987. Most of the metropolitan areas showed a decline in value except for Chattanooga where it increased 81.9 percent, and Columbus, which gained 5.3 percent.

Quarterly totals were mixed. In the third quarter, the real value of private housing units authorized dropped slightly. In the metropolitan areas, the value of total permits in Athens, Atlanta, Chattanooga, and Savannah rose a respective 11.4, 7.4, 83.8, and 2 percent. In the fourth quarter, the total value of permits dipped 19.4 percent. Most of the metro areas recorded sharp declines in value except for Chattanooga where it jumped 148.3 percent.

While permits are a leading indicator of the housing sector, sales are its coincident indicator. They reflect how much is being absorbed by consumers. Higher prices of new homes made sales more volatile, while the existing homes market is more stable. Georgia was one of the top five states registering year-to-year increases in home resales. According to the National Association of Realtors, existing home sales in Georgia (Table 3) increased 18.5 percent in 1987. While sales were strong during the first half of the year, the market reduced its pace after a midyear rise in interest rates which was followed by the October stock market crisis. In the third quarter, compared to the same period in 1986, existing home sales increased 14.4 percent to a seasonally adjusted annual rate of 89,700 units. In the fourth quarter, sales slipped 3.1 percent to a seasonally adjusted annual rate of 81,100. It appears that even though there was some adjustment to the stock market crash, potential home buyers are waiting for the aftershock.

Atlanta is the largest market in the state and one of the leading markets in the U.S. According to a national survey released by the Federal Home Loan Bank Board, the average price of a single family home rose to $140,900 in December, an increase of 19.6 percent from its level one year ago. At the same time, the average price of a new home rose 28.1 percent to $157,800 and the average price of an existing home went up 7.1 percent to $122,800. Even though inventories are falling and the number of buyers is decreasing, the rise in average prices was mainly triggered by the sales of some very expensive homes.

Table 4 contains another aspect of the housing market in Georgia: the number of mobile home shipments to the state. Overall, they dropped 12.1 percent in 1987. During the first two quarters, they declined 27.6 and 16.3 percent, respectively. The second half of the year showed little improvement. In the third quarter, shipments advanced a slight 1.1 percent and remained sluggish in the fourth quarter, up only .1 percent.

Table 1

Private Housing Units Authorized

	Albany	Athens	Atlanta	Augusta	Chattanooga	Columbus	Macon	Savannah	State
1980	NA	NA	22,058	1,667	155	576	1,145	1,152	34,837
1981	445	713	18,596	1,185	149	382	840	1,245	29,996
1982	496	780	24,015	2,258	145	560	1,255	1,839	38,737
1983	637	1,937	44,460	3,578	210	1,499	2,662	2,381	65,910
1984	791	1,322	50,131	4,265	269	1,122	2,083	1,754	70,264
1985	580	1,571	50,568	4,460	215	1,329	1,760	2,761	74,985
I	89	289	10,740	1,470	118	243	396	696	16,279
II	107	574	13,879	789	65	250	504	403	19,674
III	128	282	20,981	1,490	42	282	312	1,078	20,981
IV	93	393	13,396	657	30	554	376	374	17,387
1986	814	1,490	53,556	3,892	274	1,062	2,251	2,614	76,896
I	340	396	12,873	1,335	39	280	512	655	19,129
II	111	313	16,092	965	132	284	625	806	22,601
III	153	250	13,362	739	46	325	529	419	19,000
IV	210	531	11,229	853	57	173	585	734	16,166
1987									
I	69	232	11,263	525	120	682	401	413	15,713
II	82	323	10,919	554	151	246	489	698	16,055
III	109	226	12,033	426	95	141	428	601	17,632
IV	310	313	10,217	210	70	133	330	383	12,426
% CHANGE ON AN ANNUAL BASIS									
1986-1987									
I	-79.7	-41.4	-12.5	-60.7	207.7	143.6	-21.7	-36.9	-17.9
II	-26.1	3.2	-32.1	-42.6	14.4	-13.4	-21.8	-13.4	-29.0
III	-28.8	-9.6	-9.9	-42.4	106.5	-56.6	-19.1	43.4	-7.2
IV	47.6	-41.1	-9.0	-75.4	22.8	-23.1	-43.6	-47.8	-23.1

Note: Quarterly totals may not add to annual figures because of revisions in monthly data.

Source: U.S. Department of Commerce, Bureau of the Census, Housing Units Authorized by Permit Issuing Places and unpublished reports.

Table 2

Value of Private Housing Units Authorized (Thousands of Dollars)

	Albany	Athens	Atlanta	Augusta	Chattanooga	Columbus	Macon	Savannah	State
1980	NA	NA	$746,102	$52,073	$5,057	$19,573	$38,811	$46,572	$1,166,333
1981	$12,492	$20,071	648,789	39,378	4,233	14,845	30,364	51,765	1,018,380
1982	12,562	23,096	931,925	65,415	4,551	89,748	44,690	66,530	1,387,196
1983	18,279	56,613	1,625,171	120,311	6,048	50,961	86,300	73,252	2,367,445
1984	24,862	46,503	2,151,672	149,394	7,347	40,978	83,734	97,505	2,896,777
1985	22,062	63,381	2,289,203	152,809	7,101	49,089	77,661	136,264	3,245,941
I	4,028	11,702	480,295	43,251	1,036	9,095	19,574	39,455	684,250
II	4,170	22,072	634,407	33,859	2,111	9,998	20,461	25,928	877,146
III	5,126	12,972	881,761	49,141	1,583	13,641	17,815	44,288	881,757
IV	4,305	14,858	595,306	26,508	1,193	16,353	15,862	24,396	744,493
1986	30,053	65,802	2,787,681	187,267	8,047	47,502	103,452	158,993	3,868,204
I	9,524	17,682	646,224	57,490	1,594	11,455	23,599	34,419	907,800
II	5,717	17,921	838,033	52,899	3,551	12,580	29,374	51,463	1,158,014
III	7,041	12,527	634,860	42,599	1,599	12,618	24,077	33,097	912,090
IV	7,771	17,672	668,564	34,279	1,303	10,849	26,402	40,014	890,300
1987									
I	2,825	17,041	638,744	31,476	4,837	21,359	22,383	32,427	849,029
II	3,882	19,805	708,227	32,306	3,931	14,576	23,697	45,222	1,002,251
III	4,327	14,465	706,834	24,976	3,045	9,350	23,752	34,989	940,677
IV	2,717	16,014	660,955	13,386	3,352	6,563	19,167	31,121	743,270
% CHANGE ON AN ANNUAL BASIS									
1986-1987									
I	-71.2	-6.5	-4.1	-46.9	194.3	80.8	-8.0	-8.6	-9.3
II	-34.1	7.2	-18.0	-40.8	7.4	12.4	-21.8	-14.8	-16.1
III	-40.4	12.0	8.0	-43.1	84.7	-28.1	-4.3	2.5	0.0
IV	-66.3	-12.6	-4.6	-62.3	148.3	-41.6	-29.9	-24.9	-19.4

Note: Quarterly totals may not add to annual figures because of revisions in monthly data.

Source: U.S. Depatment of Commerce, Bureau of the Census, Housing Units Authorized by Permit Issuing Places and unpublished reports.

Table 3

Existing Home Sales in Georgia for Single Family, Apartment Condos, & Co-ops (000s of units)

Year	Annual Totals	Quarterly Totals I	II	III	IV
1983	51.0	47.8	48.3	51.1	57.1
1984	60.1	65.9	63.9	51.1	58.7
1985	65.1	68.8	63.0	58.4	70.3
1986	75.1	71.8	70.9	78.4	83.7
1987	92.5	80.1	104.9	89.7	81.1

*Note: Quarterly figures are seasonally adjusted annual rates.

Source: National Association of Realtors, "Existing Home Sales," and Annual Home Sales Supplement, May 1987.

Table 4

Mobile Home Shipments to Georgia

Year	Annual Totals	Quarterly Totals I	II	III	IV
1983	16,268	3,297	4,401	4,226	3,794
1984	18,486	4,174	4,695	4,621	4,425
1985	20,199	4,995	5,640	5,180	4,384
1986	16,774	4,661	4,536	3,995	3,582
1987	14,797	3,373	3,797	4,040	3,587

Note: Quarterly totals may not add to annual totals because of revisions in monthly data.

Source: National Conference of States on Building Codes and Standards. Published in the U.S. Department of Commerce, Bureau of the Census, *Housing Authorized by Permit Issuing Places*.

Taxable Sales in Georgia, 1986-1987,
by Industry and County
($000)

Industry	Total 1986	Total 1987	Annual Percent Change 1986-1987	Industry	Total 1986	Total 1987	Annual Percent Change 1986-1987
Food	12,777,466	13,655,270	6.9	Total Retail	39,387,787	41,885,064	6.3
Apparel	1,512,312	1,651,575	9.1				
Genl. Merch.	7,657,940	8,281,496	8.1	Lumber, Const.	4,636,497	4,757,013	2.6
Automotive	10,164,723	10,512,632	3.4	Services	4,529,055	5,029,309	11.0
Furniture	3,456,508	3,797,772	9.9	Manufacturing	3,924,845	4,001,571	2.0
Miscellaneous	3,818,839	3,986,319	4.4	Utilities	7,582,287	8,034,995	6.0
County				County			
Appling	106,880	108,872	1.9	Dade	63,121	63,464	0.5
Atkinson	24,453	23,739	-2.9	Dawson	31,119	36,501	17.3
Bacon	100,439	105,542	5.1	Decatur	218,187	243,595	11.6
Baker	11,609	9,296	-19.9	DeKalb	6,653,902	6,978,067	4.9
Baldwin	250,205	247,633	-1.0	Dodge	77,046	80,690	4.7
Banks	44,791	46,853	4.6	Dooly	72,684	74,609	2.6
Barrow	214,633	219,448	2.2	Dougherty	1,159,908	1,179,117	1.7
Bartow	382,996	400,379	4.5	Douglas	526,248	553,358	5.2
Ben Hill	118,758	116,183	-2.2	Early	150,200	147,591	-1.7
Berrien	89,658	89,065	-0.7	Echols	2,584	2,117	-18.1
Bibb	1,553,430	1,678,175	8.0	Effingham	121,423	109,434	-9.9
Bleckley	38,520	41,390	7.5	Elbert	136,677	137,185	0.4
Brantley	42,067	43,673	3.8	Emanuel	116,448	122,469	5.2
Brooks	47,589	47,471	-0.2	Evans	94,515	99,222	5.0
Bryan	87,127	91,608	5.1	Fannin	114,970	106,299	-7.5
Bulloch	262,939	285,722	8.7	Fayette	286,576	299,433	4.5
Burke	99,283	93,841	-5.5	Floyd	730,017	770,047	5.5
Butts	122,625	134,586	9.8	Forsyth	356,422	370,429	3.9
Calhoun	18,762	18,637	-0.7	Franklin	143,407	146,985	2.5
Camden	129,202	156,619	21.2	Fulton	9,709,378	10,565,073	8.8
Candler	64,498	68,297	5.9	Gilmer	104,291	110,957	6.4
Carroll	547,015	568,510	3.9	Glascock	4,096	4,306	5.1
Catoosa	293,748	310,663	5.8	Glynn	733,670	781,264	6.5
Charlton	40,136	41,344	3.0	Gordon	246,318	280,882	14.0
Chatham	2,740,294	2,852,009	4.1	Grady	121,759	127,799	5.0
Chattahoochee	12,396	16,061	29.6	Greene	78,147	79,009	1.1
Chattooga	133,797	154,047	15.1	Gwinnett	3,533,083	3,874,184	9.7
Cherokee	389,651	426,064	9.3	Habersham	266,059	273,325	2.7
Clarke	852,355	909,363	6.7	Hall	978,974	1,076,285	9.9
Clay	8,576	9,118	6.3	Hancock	25,715	25,746	0.1
Clayton	1,862,322	2,023,343	8.6	Haralson	121,037	132,243	9.3
Clinch	40,821	42,544	4.2	Harris	99,363	108,844	9.5
Cobb	4,937,659	5,240,886	6.1	Hart	135,227	158,102	16.9
Coffee	235,225	255,406	8.6	Heard	16,782	17,970	7.1
Colquitt	296,834	304,520	2.6	Henry	287,553	302,297	5.1
Columbia	224,018	260,371	16.2	Houston	624,521	630,076	0.9
Cook	79,652	100,509	26.2	Irwin	41,810	39,091	-6.5
Coweta	354,702	395,038	11.4	Jackson	310,451	327,706	5.6
Crawford	16,044	17,289	7.8	Jasper	37,003	34,872	-5.8
Crisp	200,456	202,889	1.2	Jeff Davis	122,432	134,891	10.2

Continued

Taxable Sales in Georgia, 1986-1987, by Industry and County (continued)
($000)

County	Total 1986	Total 1987	Annual Percent Change 1986-1987	County	Total 1986	Total 1987	Annual Percent Change 1986-1987
Jefferson	138,281	136,204	-1.5	Richmond	2,022,248	1,961,865	-3.0
Jenkins	45,977	43,628	-5.1	Rockdale	459,074	505,170	10.0
Johnson	23,679	26,970	13.9	Schley	16,498	19,045	15.4
Jones	81,321	86,512	6.4	Screven	92,711	85,725	-7.5
Lamar	68,067	73,829	8.5	Seminole	76,530	75,572	-1.3
Lanier	29,293	28,657	-2.2	Spalding	440,137	452,303	2.8
Laurens	364,138	363,694	-0.1	Stephens	203,720	211,298	3.7
Lee	19,307	20,723	7.3	Stewart	21,785	21,370	-1.9
Liberty	208,215	216,551	4.0	Sumter	205,826	247,543	20.3
Lincoln	24,877	29,603	19.0	Talbot	20,376	23,739	16.5
Long	8,264	8,983	8.7	Taliaferro	4,984	5,359	7.5
Lowndes	729,703	761,586	4.4	Tattnall	99,228	104,172	5.0
Lumpkin	80,694	88,604	9.8	Taylor	135,941	150,954	11.0
Macon	79,676	79,537	-0.2	Telfair	52,827	58,033	9.9
Madison	41,618	44,272	6.4	Terrell	48,669	50,513	3.8
Marion	19,651	19,639	-0.1	Thomas	358,153	370,470	3.4
McDuffie	140,107	143,505	2.4	Tift	303,757	333,421	9.8
McIntosh	50,772	54,782	7.9	Toombs	210,597	215,339	2.3
Meriwether	138,360	134,574	-2.7	Towns	55,602	61,058	9.8
Miller	34,359	34,812	1.3	Treutlen	20,428	20,915	2.4
Mitchell	125,342	131,710	5.1	Troup	538,033	565,046	5.0
Monroe	126,923	113,794	-10.3	Turner	42,493	45,243	6.5
Montgomery	18,411	21,540	17.0	Twiggs	18,259	23,836	30.5
Morgan	116,555	107,548	-7.7	Union	71,157	74,375	4.5
Murray	140,326	138,045	-1.6	Upson	151,565	158,528	4.6
Muscogee	1,712,901	1,805,117	5.4	Walker	306,340	327,561	6.9
Newton	254,118	265,108	4.3	Walton	274,305	290,894	6.0
Oconee	57,343	55,543	-3.1	Ware	294,774	303,261	2.9
Oglethorpe	34,401	34,365	-0.1	Warren	25,929	23,000	-11.3
Paulding	184,302	196,478	6.6	Washington	144,500	163,231	13.0
Peach	112,147	123,384	10.0	Wayne	209,774	233,159	11.1
Pickens	180,193	186,174	3.3	Webster	4,373	4,975	13.8
Pierce	63,261	63,965	1.1	Wheeler	18,319	19,757	7.8
Pike	21,675	25,603	18.1	White	115,332	135,231	17.3
Polk	194,572	197,805	1.7	Whitfield	1,094,529	1,197,355	9.4
Pulaski	41,462	41,749	0.7	Wilcox	18,001	20,212	12.3
Putnam	69,525	75,370	8.4	Wilkes	109,040	109,954	0.8
Quitman	7,340	7,609	3.7	Wilkinson	47,771	65,674	37.5
Rabun	85,166	92,888	9.1	Worth	82,032	83,239	1.5
Randolph	43,244	46,560	7.7	Georgia	60,060,470	63,707,951	6.1

Note: Figures rounded to the nearest thousand dollars.

Source: Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue. Sales include the value of all taxable items, as reported by firms selling or acquiring them, plus penalties and interest collected.

GEORGIA BUSINESS STATISTICS

SERIES	DEC 1987	NOV 1987	OCT 1987	DEC 1986
Georgia Leading Indicators Index[1] (1969=100)	177.52	181.62	181.31	172.66
Georgia Coincident Indicators Index[2] (1969=100)	557.40	562.00	561.88	528.79
Nonagricultural Employment[2] (thousands)	2,807.8	2,803.0	2,798.4	2,739.6
Manufacturing Employment[2] (thousands)	576.7	575.7	573.5	567.2
Average Weekly Earnings, Manufacturing[2] (dollars)	367.61	360.73	364.23	350.69
Help Wanted Advertising, Atlanta Index[3] (1967=100)	275	293	279	263
Taxable Retail Sales[4] ($ millions)	4,158.8	3,646.8	3,330.2	4,010.5
Building Permits[5]				
Residential Housing Units, Private (thousands)	3.6	4.1	4.7	4.8
Value of Residential Housing ($ thousands)	220,863	235,811	286,596	254,325
Value of Nonresidential Construction ($ thousands)	228,380[p]	256,591	258,714	279,095
Industrial Buildings	19,322	40,981	28,548	31,937
Office, Bank and Other Professional Buildings	94,588	26,504	34,156	110,246
Stores and Other Mercantile Buildings	32,397	88,845	66,122	40,072
Other	82,073	100,261	129,888	96,840
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (December 1977 = 100)	184.8	185.1	184.7	177.9
South/Population more than 1,200,000[a]	185.5	186.0	185.4	—
South/Population 450,000 - 1,200,000[a]	186.9	187.0	186.7	—
South/Population 50,000 - 450,000[a]	182.6	183.0	182.6	—
South/Population Less than 50,000[a]	182.9	182.9	182.1	—
Atlanta (1967=100)[b]	—	—	—	342.2
Prices Received by Farmers, Georgia Index[7] (1977=100)	117	121	121	124
	1987:III	1987:II	1987:I	1986:III
Total Personal Income[8] ($ millions)	87,799	86,816	85,383	82,676

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[a] Group size revised as of January 1, 1987; 1986 data are for June.

[b] Atlanta index is average of first 6 months of the calendar year (Jan. - June, 1986 and 1987).

[p] Imputation greater than 25%.

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GEORGIA BUSINESS AND
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Some Implications of the Decline in Georgia's Federal-Aid Highway Funding

Charles F. Floyd

Federal-aid highway funds have been a very major factor in financing Georgia's highway construction program. Unfortunately, however, this source of revenue has declined significantly in recent years, from a high of $463.4 million in fiscal year 1980 to only $332.7 million in the current year, and further reductions are almost certain. When adjusted for inflation, the "real" declines are even greater. Obviously, this loss in federal-aid highway funding will affect the state's ability to meet its future highway transportation needs.

Federal-aid highway fund allocations to Georgia for fiscal years 1978 to 1991 are shown in Table 1 and Figure 1. The allocations through 1991 already have been determined by the recent Federal Surface Transportation Act, but amounts actually received in these future years probably will be even lower due to federal budget deficit reduction efforts.

INTERSTATE SYSTEM FUNDING

The federal highway program is primarily an interstate system construction and reconstruction program, with the bulk of funds being allocated to these activities. As Table 2 and Figure 2 demonstrate this factor used to work in Georgia's favor, with the state receiving $319.9 million in interstate funds in the peak year of fiscal 1980 and over $200 million most years through 1986.

Why did Georgia receive such a large allocation of interstate aystem funds in the earlier years of this decade and why has its allocation declined so drastically since then? First, federal interstate system construction funds — the monies required to initially build the system — are allocated to the states based on their percentage of the national interstate construction estimate. For example, if a state's estimated cost to complete its portion of the interstate system is x% of the national total, than it will receive x% of the annual interstate system construction monies.

The fundamental factor that directed a relatively large portion of the national allocation of interstate system monies to Georgia was the state's success in having the reconstruction of the Atlanta freeway system included as part of the interstate system *construction* program rather than the reconstruction program. This meant that 90 percent of the monies needed to reconstruct the Atlanta freeway system came, not from other areas of Georgia, but from the other states.

With the virtual completion of the state's interstate system, however, Georgia's share of these revenues has drastically declined, and no improvement is likely to occur until Congress declares the interstate system completed and reallocates these funds to other programs.

Georgia also received significant interstate system funding in fiscal years 1978 through 1983 from *discretionary* allocations. As the term implies, these funds were distributed by the Federal Highway Administration to the states outside the regular allocation process when monies were available near the end of the fiscal year because some states had not utilized all of their allocation. Georgia always used its entire allocation and always had projects ready to utilize any additional monies that might be available. Consequently, it received large amounts of discretionary funds. Unfortunately, the Surface Transportation Act of 1982 terminated this funding.

Georgia obtained other types of highway funding as well. In fiscal 1984 it began receiving interstate transfer funds for segments of the designated interstate system that will not be built, such as I-420. These funds are relatively small and are declining.

On the other hand, federal-aid allocations for reconstruction and resurfacing, the so-called "4R" funds, constitute a very rapidly growing category of funding. With the 1983 increase in the federal motor fuels tax from 4 cents to 9 cents per gallon, Congress designated a large portion of these extra funds to rebuilding the interstate system, which many states was in very poor repair. Georgia, however, had already spent its own funds to rehabilitate these pavements, so used its allocations mostly to provide additional lanes on crowded sections.

The "4R" funds are distributed to the states according to a formula set by Congress. Georgia's allocation has declined to $88.3 million in the current year from a high of $100 million in fiscal 1987. It appears unlikely these revenues will be sufficient to accomplish needed reconstruction work on Georgia's interstates.

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FEDERAL-AID PRIMARY ALLOCATIONS

A second major category of federal-aid highway funding is for the primary system. This network is made up of most, but not all, of the US numbered routes, and a few Georgia numbered routes. It also includes many of the most heavily traveled roads on the Economic Development Highway System.

Federal-aid primary allocations to Georgia have increased only slightly in recent years, reaching a peak of $58.7 million in fiscal 1986. They are totally inadequate in relation to the overwhelming need to reconstruct many miles of this system to provide additional capacity and to aid in the state's economic development.

The federal-aid highway program will allocate approximately $117 million to Georgia in the current fiscal year for other programs. Encompassed in this category are $13.7 million for urban roads, $15.5 million for rural secondary roads, and $35.6 million for replacement of inadequate bridges. It also includes $38.7 million to bring Georgia's

Table 1

FEDERAL-AID HIGHWAY ALLOCATIONS TO GEORGIA
FISCAL YEARS 1978-1991
(In Millions of Dollars)

Fiscal Year	Interstate	Primary	Other	Total
1978	90.1	33.2	62.2	185.9
1979	165.6	31.9	77.9	275.4
1980	319.9	41.5	102.0	463.4
1981	280.8	50.8	98.8	430.4
1982	168.0	41.7	101.0	310.7
1983	178.0	42.7	77.5	298.2
1984	227.8	49.8	101.4	382.0
1985	203.0	54.5	81.7	339.3
1986	247.0	58.7	85.8	391.5
1987	211.9	54.6	124.5	391.0
1988	160.8	54.6	117.0	332.7
1989	160.8	54.6	117.0	332.7
1990	160.8	54.6	117.0	332.7
1991	160.8	54.6	117.0	332.7

Source: Georgia Dept. of Transportation.

FIGURE 1
FEDERAL-AID HIGHWAY ALLOCATIONS TO GEORGIA
FISCAL YEARS 1978 - 1991

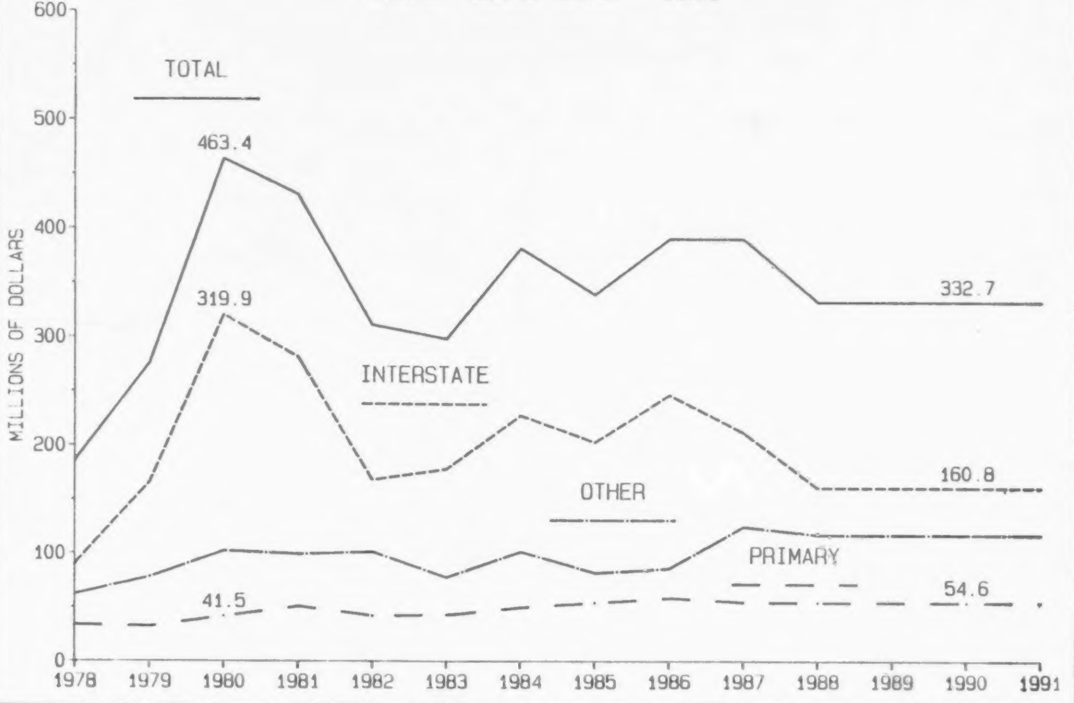
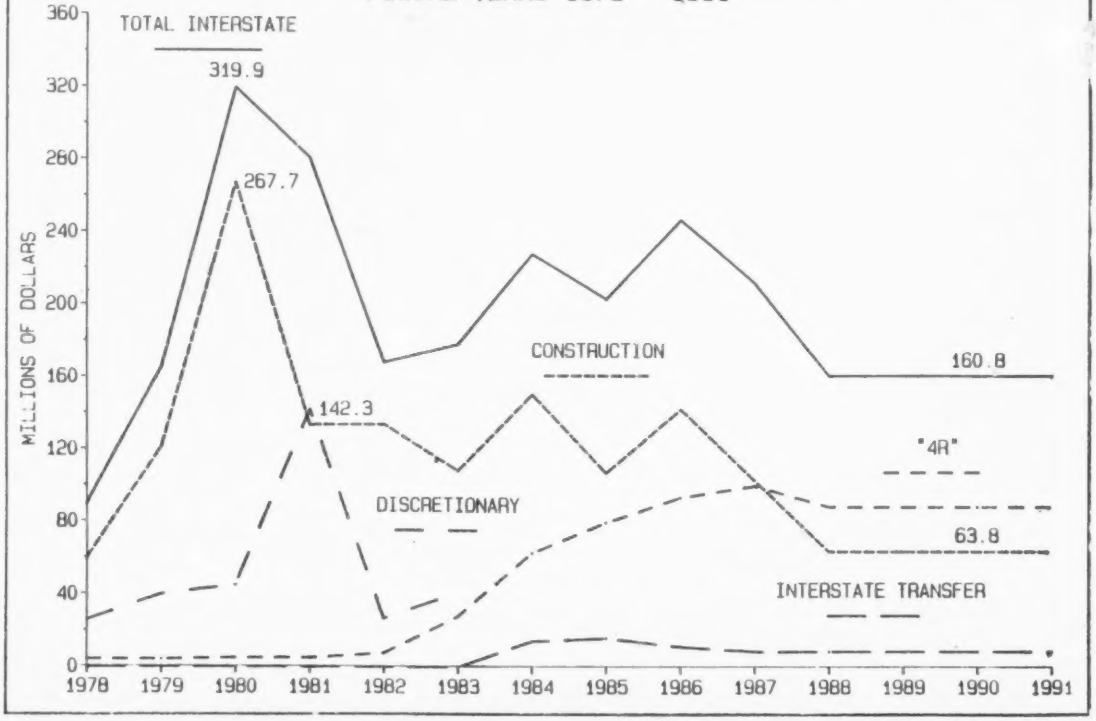


FIGURE 2
FEDERAL-AID INTERSTATE ALLOCATIONS TO GEORGIA
FISCAL YEARS 1978 - 1991



total allocation up to a minimum of 85 percent of the estimated amount of federal highway user taxes collected in the state.

In contrast to the earlier years of this decade when Georgia received far more in federal-aid highway funds than were being collected in the state, the federal program now returns only about 85 percent of the revenues collected in Georgia. This is primarily a result of continued emphasis on allocating funds to complete the interstate highway system, a task almost finished in Georgia. Since these allocations already have been determined by Congress for the next four years, the state cannot expect the federal program to supply sufficient funds to meet its highway construction needs, so it must turn to its own resources instead.

Table 2
FEDERAL-AID INTERSTATE ALLOCATIONS TO GEORGIA
FISCAL YEARS 1978-1991

Fiscal Year	Regular	"4R"	Discretionary	Transfer	Total
1978	59.9	4.2	26.0	0.0	90.1
1979	121.4	4.1	40.1	0.0	165.6
1980	267.7	4.9	45.3	0.0	319.9
1981	133.6	4.9	142.3	0.0	280.8
1982	133.6	7.6	26.8	0.0	168.0
1983	108.2	28.2	41.5	0.0	178.0
1984	150.4	63.0	0.0	14.4	227.8
1985	107.3	79.9	0.0	16.1	203.0
1986	142.3	93.7	0.0	11.1	247.0
1987	103.0	100.0	0.0	8.6	211.9
1988	63.8	88.3	0.0	8.7	160.8
1989	63.8	88.3	0.0	8.7	160.8
1990	63.8	88.3	0.0	8.7	160.8
1991	63.8	88.3	0.0	8.7	160.8

Source: Georgia Department of Transportation .

Changing Employment Patterns in The South Central Georgia Region: 1960-1980

J. L. Love

A region's growth in total employment concerns policymakers because it is a necessary condition for continued economic expansion. An expanding total employment level is not sufficient to insure an improvement in economic well-being, however. The type of job opportunities within the region are important since expanded employment in slow growing industries implies a decline in future job opportunities. In addition, the sensitivity of the local economy to the business cycle has important implications since wide fluctuations in employment produces serious dislocations.

The objective of this article is to identify the components of employment growth within the south central region of Georgia (including Brooks, Berrien, Cook, Echols, Lanier, and Lowndes counties) and to determine the sensitivity of the local economy to the business cycle. The south central region (SCGR) consists of Lowndes County, the urbanized central district around Valdosta, and contiguous rural counties.

The SCGR is experiencing the normal growth patterns of a developing nodal region; a region that has a central market area with an economically integrated periphery. Between 1960 and 1980, the area began to emerge as a nodal region as Valdosta developed into the central city for the area. Employment began to shift from the lower income agricultural occupations into the higher-skilled, higher-paying sector. As indicated in Table 1, growth in employment over the two decades increased faster than total employment growth in all sectors except public administration and agricultural services.

ANALYZING THE CHANGES

The changes in production sector employment have two important implications for the regional economy: the mix and nature of sectoral employment influences the rapidity of economic growth and the sensitivity of the region to the business cycle. The method used to identify these changes within the region is the shift-share analysis of sectoral employment. This technique separates employment changes in a particular production sector into its components: the national effect (share), the industry effect (mix), and the regional shift (competitiveness). In addition to assessing the region's prospects on a sector-by-sector basis, the method allows an analysis of the overall growth rate of a region's activity by weighting the growth rates of the separate sectors that comprise the region's economy.

Shift refers to the difference between the actual employment change and the change that would have been expected on a share basis. Once the figure for shift is obtained, it is separated into two components: that which is attributable to the region's competitive strength and that which is attributable to its industry mix. If the region's growth rate is compared with that of some other region or regions, it is possible to explain the differences in growth rates statistically in terms of these two components.

For example, suppose a region's industrial activity grows at exactly the same rate as the nation's. The region's share of the national total for each industry remains unchanged over the time interval in question, but the national growth rates for some activities are higher than others. If the region contains mainly fast growing sectors and relatively few of the slow growing sectors, it is said to have a favorable industry mix and its overall percentage growth rate will exceed that of the nation. On the other hand, if slow growing industries are more heavily represented in the region's mix than the nation, the region's overall growth rate will be slower than the national growth rate.

We can evaluate the shift or competitive component by imagining a region that has exactly the same industrial mix as the nation. The region will have an overall growth rate higher than that of the nation if it increases its share (that is, if most sectors grow faster in the region than in the nation).

In any real situation, of course, it is almost certain that the relative growth rates of region and nation will show the effects of some combination of mix and competitive components. Either effect, and the net result, can be positive or negative for the region, indicating that the region has a favorable or unfavorable mix and that the region has a competitive advantage or disadvantage.

The second factor that provides an indication of changes in the economic well-being in the region is the effects of these sectoral changes on the region's sensitivity to the business cycle. The measure used to indicate the expected employment fluctuations as a result of these distributional changes (or changing industry mix) are the recessionary (RC-) and recovery (RC+) elasticities of variation coefficients.

These measures are derived from the variations in sectoral employment at the national level and the region's employment distribution. The variations in sectoral employment are the average percentage changes from peak to trough and from trough to trough twenty months into

Table 1

South Central Georgia Region
Sectoral Growth Rates

Production Sector	1960-80	1960-70	1970-80
Agri/forest/fish/mining	-4.04	-4.91	-3.17
Contract construction	2.46	1.79	3.14
Manufacturing	3.61	4.42	2.81
Transportation/public utilities	4.08	7.98	0.32
Wholesale/retail	3.03	2.72	3.35
Finance/insurance	3.98	4.46	3.50
Service	3.07	2.30	3.85
Government	0.97	-0.41	2.36
Total	1.94	1.14	2.75

Source: *Georgia Statistical Abstract*, 1982, 1971, 1961.

Table 2

South Central Georgia Region
Shift-Share Analysis and Location Quotient
1960-1980 (Annual Rate)

Production Sector	Natl Effect	Indus Effect	Regional Shift		SCGR Total	Location Quotient	
						1960	1980
Contract const.	-	-0.64	0.20		3.13	136.9	133.9
Manufacturing	-	-2.36	3.96		5.17	100.9	118.0
Transprt/pub util.	-	-1.98	4.53		6.12	109.4	109.8
Wholesale/retail	-	0.19	0.33		4.09	102.1	102.3
Finance/insurance	-	1.83	0.51		5.91	70.4	72.4
Service	-	4.91	-4.32		4.16	154.1	138.9
Government	-	1.03	-3.54		1.06	37.2	28.3
Total	3.57	+0.83	-0.19	=	4.21		

Source: *Georgia Statistical Abstract*, 1982, 1961, and U.S. Bureau of Economic Anlaysis, *Survey of Current Business*, July 1981.

Table 3

South Central Georgia Region
Shift-Share Analysis and Location Quotient
1960-1980 (Annual Rate)

Production Sector	Employment Variations Post-1960 Business Cycles Recessions	Recoveries	Employment Distributions U.S. 1960	SCGR 1960	U.S. 1980	SCGR 1980
Contract const.	-6.6	7.5	5.3	4.9	7.5	6.6
Manufacturing	-8.9	5.7	31.3	22.7	24.3	26.7
Trnsprt/pub util.	-2.4	1.2	7.5	5.7	5.2	6.3
Whsle/retail	-0.4	5.0	22.3	22.8	23.7	23.3
Finance/insur.	1.6	5.2	4.7	5.8	3.5	4.2
Service	2.4	7.2	12.7	20.0	28.0	27.8
Government	1.9	3.5	16.2	18.1	7.8	5.1

Business Cycle Sensitivity Measures

	1960		1980	
Employment Variations	U.S.	SCGR	U.S.	SCGR
Recessions	-2.72	-2.00	-1.65	-2.22
Recoveries	5.11	5.67	5.24	5.66
Elasticity of Variation Coefficients				
Recessionary (RC-)		-0.73		-1.34
Recovery (RC+)		+1.11		+1.08

Source: *Georgia Statistical Abstract*, 1982, 1961, *New England Economic Review*, 1985, U.S. Bureau of Economic Anlaysis, *Survey of Current Business*, July 1981.

recovery during the four post-1960 recessions. The variations are separated into the percentage declines during recessions and increases during expansions. Both the increase and decrease in these average percentage changes are weighted by the national sectoral employment distributions in 1960 and 1980. The sum of these weighted variations are the expected changes in total employment in the U.S. for these benchmark years.

The expected sectoral employment variations in the region are assumed to be the same as the national variations. These employment variations are weighted by the region's distribution of employment for both 1960 and 1980 and summed to derive the expected total employment variations in the region.

BUSINESS CYCLE SENSITIVITY

The ratios of expected regional to national employment variations are the elasticity coefficients of the region's sensitivity to the business cycle. A coefficient greater than one indicates the region is more sensitive to employment fluctuations than the nation, while a coefficient smaller than one indicates it is less sensitive.

An indication of a change in the region's sensitivity to the business cycle that results from changes in sectoral employment patterns is provided by the comparison of the elasticity coefficients derived from the 1960 and 1980 distributions. If the region has increased its relative shares in sectors that are highly sensitive to the business cycle, the coefficient derived from the 1980 distribution will be greater than the 1960 distribution.

The data used for the analysis of the south central Georgia regional economy are the employment levels in seven nonagricultural production sectors identified in national statistics and detailed in Table 2, along with the results of the shift-share analysis for the period 1960 to 1980. In addition, the table presents the regional location quotient or the region's sectoral employment as a percent of the national distribution.

As indicated by the weighted total figure, the region grew at a more rapid rate than the nation, 4.2 percent compared to 3.6 percent. Analysis of the weighted totals reveals a favorable industrial mix (+0.83) weighted toward the faster growing industries. However, the region has an unfavorable regional shift (competitive) component (-0.19) because it increased employment in industries that are in relative decline nationally, while losing relative share in emerging industries.

The second determinant of the regional benefits of employment changes in employment is the variability of opportunities provided. It can be argued that increasing employment opportunities in the slower growing industries does not produce the fastest regional growth but increases in sectors less sensitive to the business cycle provide a less disruptive growth. The measure of regional sensitivity of employment patterns is provided by the recessionary and recovery elasticity of variation coefficients, (RC+ and RC-). To determine if the changes in the employment patterns have increased or decreased sensitivity to the business cycle, we compared the coefficients from the 1960 employment distribution (-0.73 and +1.11) with the 1980 distribution (-1.34 and +1.08). An increase in the numerical value of either of the elasticity coefficient indicates that the region has become more sensitive to the business cycle and can expect greater variation in employment. Table 3 details employment distributions and the average percentage variations in employment by sector for the four post-1960 recessions and recoveries.

A comparison of the SCGR's recessionary elasticity coefficient, (RC-), indicates that the region increased its relative employment in industries that are more susceptible to the business cycle, and reduced its relative share in less sensitive sectors. That is, the region can expect a decline of 1.3 percent for every 1 percent decline in the national employment rate under the 1980 distribution compared to the 1960 expected decline of 0.7 percent. The region can expect an increase under the 1980 distribution of about 1 percent during recovery compared to the 1960 expected increase of 1.1 percent.

The region has experienced a relative increase in employment share in slower growing and business cycle sensitive industries during the 1960-80 period. The combination of the shift-share results and the business cycle sensitivity coefficients provides an indication of future economic activity for the area. A continuation of the growth patterns indicates that the SCGR will increase employment opportunities in industries that are declining and more volatile. This will produce a slower growth in employment opportunities and a greater downward variation in employment levels over future business cycles.

J.L. Love is associate professor of marketing and economics at Valdosta State College in Valdosta, Georgia.

Eighth in a continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

The Augusta Region

The Augusta region is formed by Columbia, McDuffie, and Richmond counties. Besides the city of Augusta, the region includes the towns of Appling, Thomson, Hephzibah, and Grovetown. The Medical College of Georgia, Augusta College, and Fort Gordon Military Reservation also are located in the area.

The region's major industrial employers are the food; textiles; apparel; lumber; paper; printing; stone, clay, and glass; chemicals; and non-electrical machinery industries (Table 1). Of these nine, only the food, textiles, and apparel industries experienced a low growth in statewide employment between 1980 and 1986. Employment growth for these industries was 3 percent, -12.8 percent, and -1.8 percent, respectively. The other industries showed moderate to high gains with lumber at 22.3 percent; stone, clay, and glass at 19.4 percent; and a peak 51.9 percent for printing employment. The paper, chemicals, and non-electrical machinery industries grew 10.5 percent, 11.8 percent, and 15.5 percent, respectively. The largest lumber company in the region, Continental Forest Industries in Richmond County, employs over 1,000 workers.

Employment in the Augusta region grew at a 1.5 percent compounded rate between 1980 and 1987 . As Table 2 shows, the area's civilian labor force unemployment rate averaged 6.7 percent approximately the same as the statewide unemployment rate. This region's unemployment rate ranged from a high of 8 percent in 1983, to a low of 6.1 percent in 1986. The labor force expanded at an

Table 1

Augusta Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
Industry	1-19	20-99	100-249	>250	Total
Food & kindred products	2	6	5	1	14
Tobacco manufactures	0	0	0	0	0
Textile mill products	5	1	2	3	11
Apparel & other textile products	5	7	2	2	16
Lumber & wood products	25	14	1	0	40
Furniture & fixtures	3	1	0	0	4
Paper & allied products	4	4	3	2	13
Printing & publishing	27	1	1	1	30
Chemicals & allied products	4	7	2	2	15
Petroleum & coal products	0	0	0	0	0
Rubber & misc. plastics products	2	1	1	0	4
Leather & leather products	0	0	0	0	0
Stone, clay, and glass products	13	4	2	1	20
Primary metal industries	0	2	0	0	2
Fabricated metal products	5	3	0	0	8
Machinery, except electrical	9	6	1	2	18
Electric & electronic equipment	2	0	0	0	2
Transportation equipment	1	0	1	1	3
Instruments and related products	3	0	0	1	4
Misc. manufacturing industries	5	1	0	0	6
Total number of plants	115	58	21	16	210

Source: U.S. Department of Commerce, Census of Manufacturing, 1982 annual rate of 1.3 percent between 1981 and 1985, compared to a 2.5 percent growth rate for the state. This region's relatively low unemployment rates may be associated with the fact that 56.8 percent of its labor force has at least a high school education. This compares favorably with the state as a whole since 56.4 percent of Georgia's civilian labor force has a high school education.

Table 2

Civilian Labor Force
Augusta

Year	Employed	Unemployed	Total
1980	96,769	6,563	103,332
1981	97,423	6,679	104,102
1982	97,818	8,230	106,048
1983	6,711	8,446	105,157
1984	100,820	6,811	107,631
1985	102,560	6,995	109,555
1986	107,811	6,981	114,792
1987	107,690	7,116	114,806

Source: Georgia Dept. of Labor, Labor Information System.

The Augusta region forms part of the Augusta retail trade area. Retail sales are concentrated in Richmond County which accounts for 55 percent of the area's sales.

Residential construction gained consistently between 1980 and 1986 (Table 3). Single unit construction grew from 648 in 1980 to 2,694 in 1986 reflecting an annual growth rate of 26.8 percent. Even greater was the expansion of total residential construction, which jumped from 804 units in 1980 to 3,878 units six years later, producing an annual growth rate of 30 percent.

Industrial construction in the Augusta region was very volatile during this period. Values ranged from a low in 1982 of $.3 million to a high in 1983 of $17.2 million. After 1983, the region's industrial construction declined. On the other hand, office, bank, and professional buildings construction grew steadily, climbing from a low in 1980 of $2.9 million to a high in 1986 of $18.2 million, with a growth rate of 35.8 percent.

Table 3

Building Permits
Augusta

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	648	804	$4,074,497	$2,874,952	$2,587,094
1981	505	747	7,014,000	3,630,553	3,711,470
1982	1,061	1,960	336,000	3,078,076	3,054,852
1983	1,788	2,858	17,172,000	7,417,207	6,090,228
1984	2,111	3,148	6,720,767	7,512,827	9,009,076
1985	2,256	4,442	1,529,967	8,456,509	15,351,241
1986	2,694	3,878	1,089,750	18,176,371	5,661,851
Total	11,063	17,837	$37,936,981	$51,146,495	$45,465,812

Source: U.S. Dept. of Commerce, Bureau of the Census.

GEORGIA BUSINESS STATISTICS

SERIES	FEB 1988	JAN 1988	DEC 1987	FEB 1987
Georgia Leading Indicators Index[1] (1969=100)	177.32	175.76	176.90	173.92
Georgia Coincident Indicators Index[2] (1969=100)	585.72	565.97	567.96	541.12
Nonagricultural Employment[2] (thousands)	2,777.3	2,764.6	2,807.8	2,708.2
Manufacturing Employment[2] (thousands)	572.7	568.8	576.7	561.0
Average Weekly Earnings, Manufacturing[2] (dollars)	355.68	356.83	367.61	346.08
Help Wanted Advertising, Atlanta Index[3] (1967=100)	261	280	275	268
Taxable Retail Sales[4] ($ millions)	3,474.1	2,898.0	4,158.8	3,023.4
Building Permits[5]				
Residential Housing Units, Private (thousands)	5.5	3.2	3.6	6.0
Value of Residential Housing ($ thousands)	324,001	193,786	220,863	304,365
Value of Nonresidential Construction ($ thousands)	195,497	121,353	228,380[P]	146,834[P]
Industrial Buildings	29,938	13,654	19,322	12,907
Office, Bank and Other Professional Buildings	42,816	22,381	94,588	23,138
Stores and Other Mercantile Buildings	48,496	23,733[P]	32,397	43,403
Other	74,247	61,585	82,073	67,386
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (December 1982-84 = 100)	114.1	114.1	114.0	110.7
South/Population more than 1,200,000[a]	115.2	114.9	114.9	111.2
South/Population 450,000 - 1,200,000[a]	115.1	114.8	114.5	111.3
South/Population 50,000 - 450,000[a]	113.4	113.3	112.8	110.3
South/Population Less than 50,000[a]	112.7	112.8	112.6	109.2
Atlanta (1982-84=100)[b]	–	–	117.5[c]	115.5[c]
Prices Received by Farmers, Georgia Index[7] (1977=100)	121	121	117	127
	1987:IV	**1987:III**	**1987:II**	**1986:IV**
Total Personal Income[8] ($ millions)	90,442	88,551	86,578	84,079

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[a] Group size revised as of January 1, 1987; indexes revised to 1982-84=100 base as of January, 1988.

[b] Atlanta index is average of each 6 months of the calendar year; base revised to 1982-84=100 as of January 1, 1988.

[c] Data are for 2nd half, 1987, and first half, 1987, respectively.

[P] Preliminary; more than 25% imputed.

CPI Note

As of January 1988, the Consumer Price Index (CPI) was rebased from the previous standard reference base of 1967=100 to a new base of 1982-84=100. This base change, as reviewed by the Office of Federal Statistical Policy and Standards, Office of Management and Budget, is in keeping with governmental policy of periodically updating index bases. The rebasing affects all national, regional and area indexes and subindexes.

The 1982-84 period was selected to coincide with updated expenditure weights, based upon data tabulated from the Consumer Expenditure Surveys for 1982, 1983, and 1984. The last rebasing of CPI data occurred in February 1971, when the 1967 base was substituted for the 1957-59 base.

Historical data, conversion factors and additional information on rebasing are available from the Bureau of Labor Statistics. For further details on the availability of data still indexed on the 1967=100 base, please contact the BLS at (202) 523-1221 or (202) 523-1206.

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GEORGIA BUSINESS AND
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Capitalization Rates on Income Property: Trends and Forecast

Hugh O. Nourse

Data are readily available for those who wish to invest in a new home or in the stock market. Newspapers publish changes in interest rates on treasury bonds and on corporate bonds, as well as the rates on mortgages for single-family houses. Unfortunately, such information on the price and return for investment real estate, such as apartments, offices, industrial parks, or retail centers, is much more difficult to obtain because it is closely guarded.

What is available for would-be investors is a quarterly report on mortgage commitments on multi-family and non-residential properties reported to the American Council of Life Insurance (ACLI) by life insurance companies that goes back to 1966. Readily accessible, this report gives the average capitalization rate on investment properties, although the data lag events by three to six months. The capitalization rate ("cap rate") is annual stabilized net operating income divided by property value:

$$\text{Cap Rate} = R = \text{NOI/Price}$$

The term "stabilized" means that there is an attempt to estimate income once the building has reached normal occupancy. Property value is the appraised value and reflects market prices and cap rates to the extent that appraisers are accurate.

AN ILLUSTRATION

To understand this better, consider the following calculation of net operating income. Suppose that a property would gross $1.6 million per year, if it were fully occupied. We then deduct a normal vacancy rate, say 5 percent, and operating expenses to obtain the net operating income.

Table 1
Calculation of Net Operating Income

Potential Gross Income		$1,600,000
Less Vacancy and Collection Loss		80,000
Equals Effective Gross Income		1,520,000
Less Operating Expenses		
Fixed (Insurance, Property Tax)	$304,000	
Variable	380,000	
Replacement Reserves	152,000	
Total Operating Expenses		$836,000
Equals Net Operating Income		$684,000

The median cap rate has been 10 percent since 1965. Thus, if the annual stabilized net operating income of a property were the $684,000 as calculated, the expected price could be estimated by dividing by the cap rate:

$$\$684,000/.10 = \$6,840,000$$

This does not mean that the average return on income property was or was expected to be 10 percent. It is simply the ratio of income to price, the ratio of two readily available numbers. The actual return on property is more complicated, but by describing the actual return we learn the difference between the cap rate and the rate of return, and the factors that produce changes in the cap rate.

The actual return is cash flow after taxes plus the after-tax sales proceeds divided by equity:

$$\text{Actual Return} = (\text{ATCF} + \text{ATSP})/\text{Equity}$$

The cap rate is at once both more and less inclusive. The net operating income is the sum of the after-tax cash flow, income taxes, and the annual debt service on the mortgage. It does not include any appreciation on capital. Consequently, the cap rate can be less than the desired return, at least by the amount of the expected increase in property value. Another reason would be if, as was true from 1981 to 1986, real estate is a tax shelter. During that period, income property could show a negative income for tax purposes and allow tax deductions against other income. Those tax savings on other income became an additional benefit of the investment; therefore, the ratio of net operating income to price could be even less than desired return on the property.

We can also begin to see what might cause changes in the cap rate. Since the annual debt service varies with the level of mortgage interest rates, the cap rate fluctuates accordingly. Remember that changes in inflation expectations prompt changes in the expected rate because the higher inflation, the less the cap rate must be to reach a specific return. On the other hand, real estate is an illiquid investment which requires a greater return than that received for the more secure mortgage loan. Thus, the desired actual return should be higher than the mortgage interest rate and move with it. In addition, changes in the tax structure could shift the cap rate for any given quarter.

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Given these factors, it is not surprising that cap rates vary widely. The low cap rate was 8.3 percent in the second quarter of 1966; the high cap rate was 13.4 percent in the fourth quarter of 1981. These were extreme values. Fifty percent of the time, the cap rate ranged between a low of 9.4 percent and a high of 10.8 percent. This might appear small, but small changes in the rate have a large impact on price. For instance, the following calculation shows the expected price of the investment example (Table 1) with a net operating income of $684,000:

$$\$684{,}000/.094 = \$7{,}276{,}596$$
$$\$684{,}000/.108 = \$6{,}333{,}333$$

This represents a difference of $943,263, or an increase of 14.9 percent on the lower price and a decrease of 13 percent on the higher price. In fact, since income tends to rise with inflation, variations in the cap rate affect income. Prices may not decline, but they rise faster or slower than income depending on whether the cap rate declines or increases. Prices rise with decreases in the cap rate; they fall or rise more slowly with increases in the cap rate.

OTHER FACTORS

Variations in mortgage interest rates, risk, and business conditions by region and property type also affect the cap rate. As Table 2 shows, the South Atlantic region, which includes Georgia, and the Pacific region registered the lowest cap rates. The highest cap rates were in the East North Central and the East South Central regions which encompass Ohio, Indiana, Illinois, Michigan, and Wisconsin, and in the south, Kentucky, Tennessee, Alabama, and Mississippi. The lowest cap rates are on apartments and office buildings; the highest are on hotels and motels because they are riskier than other property types.

The accompanying chart tracks the cap rate and mortgage interest rate by quarters on multi-family and nonresidential property loans from the third quarter of 1965 through the fourth quarter of 1987. The unemployment rate also is shown to add perspective on the overall state of the economy during this period. While all three series appear to move together, mortgage interest rates tend to lead cap rates by two to three quarters. Thus cap rates, interest rates, and unemployment reach peaks about the same time. As cap rates fall, prices rise relative to income, and unemployment begins to decline.

The relationship between mortgage interest rates and the cap rate is particularly interesting. In 1965 mortgage interest rates were 5.9 percent and the cap rate was 8.5 percent. That 2.6 percent spread declined over the late

Table 2

Cap Rates by Region
Fourth Quarter 1987

Region	Cap Rate
New England	9.4%
Middle Atlantic	9.5
East North Central	9.6
West North Central	9.4
South Atlantic	9.3
Property Type	
Apartment	8.8
Commercial Retail	9.7
Office Building	8.9
Commercial Service	9.2
Industrial	9.6
Hotel and Motel	11.0
Average	9.4
East South Central	9.7
West South Central	9.5
Mountain	9.4
Pacific	9.2
Average	9.4

Source: American Council on Life Insurance, "Mortgage Commitments on Multi-family and Nonresidential Properties Reported by 20 Life Insurance Companies, Fourth Quarter 1987," *Investment Bulletin*, March 28, 1988, Tables O and P.

Sixties and early Seventies with the increase in inflation. (Remember that the cap rate may be lower because part of the return comes from appreciation.) By late 1980 and early 1981, the cap rate was lower than the mortgage interest rate. The timing is coincident with rapid inflation and with the 1981 tax reform act which allowed real estate investors to depreciate their property over fifteen years. The increased depreciation allowance reduced taxable income to negative amounts, even though there were positive cash flows from property. The taxpayer also was allowed to deduct these tax losses from other income. As a result, reduced taxes on other income became an additional benefit to real estate investment. Even with reduced inflation in the mid-Eighties, the cap rate remained below the mortgage interest rate until the tax reform act of 1987.

The new tax act reversed the benefits to real estate by decreasing allowable depreciation and removing the ability to use real estate income losses as deductions against other income. Consequently, most forecasters anticipated that cap rates would have to rise. Income would have to increase and prices drop to generate the same return before and after the tax. That appears to have happened for a short period. With the expectation of rising interest rates in the near future, however, cap rates also are anticipated to climb. In fact, cap rates should rise faster than interest rates in order to generate returns necessary to invest in real estate. Thus, income on property should increase and prices should fall or at least rise more slowly than income in the next two to four quarters. Unemployment also will begin to rise.

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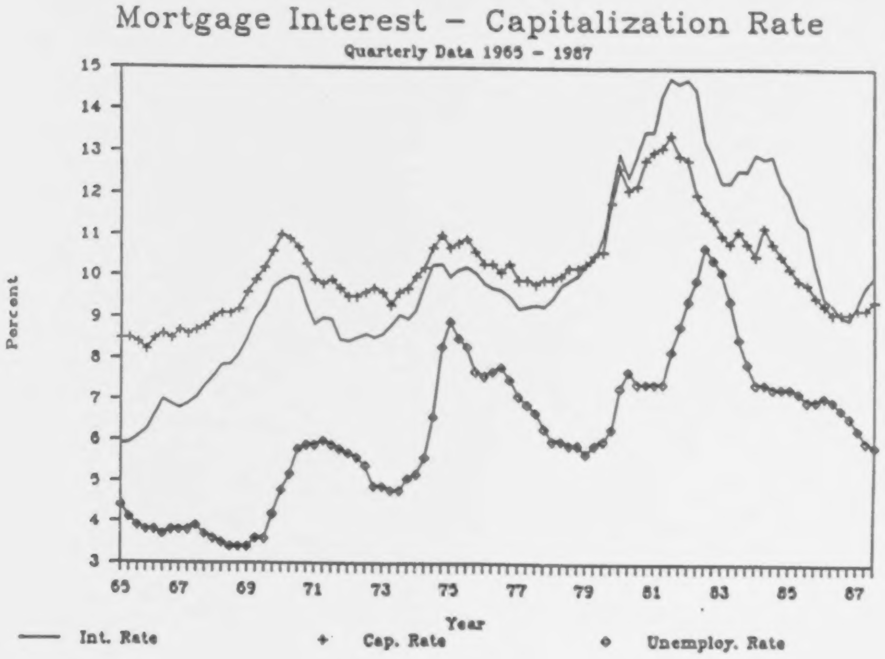

Part 1

Aspects of Income in Georgia and the Southeast

Suzanne A. Lindsay

Data on the income of persons, households, and areas offer basic tools for investigating economic position and change. Measures of income differ in definition and extent, however, and therefore in usefulness for specific tasks. Part I of this article explores similarities and differences between total personal income and per capita personal income, and presents the most recent summary data each provides for Georgia, other southeastern states, and in three cases, Georgia's counties. Two additional measures, per capita money income and household income will be discussed in the next issue.

In April 1988, the U.S. Bureau of Economic Analysis released estimates of personal income for all states and local areas, including data for metropolitan statistical areas and counties. The data reflect a comprehensive revision covering 1969 through 1984, with new estimates for 1985 and 1986 (the first issued in two years). The changes follow earlier comprehensive revisions of the national income and product accounts and of state estimates. Methodological changes involving both definitions and classifications, and statistical changes resulting from the introduction of new source data, mean that the new data replace previously issued values and are no longer compatible with existing unrevised estimates for 1959-68.

The BEA defines **total personal income** as "the income received by all persons from all sources, that is, from participation in production, from government and business transfer payments, and from government interest. (It)...is the sum of earnings (private and government wage and salary disbursements, other labor income, and farm and nonfarm proprietors' income), rental income of persons, personal dividend income, personal interest income, and transfer payments less personal contributions for social insurance. Personal income is measured before deduction of personal income taxes and other personal taxes and is reported in current dollars (no adjustment is made for price changes)." **Per capita personal income** is derived by dividing the annual total personal income of residents of a given area, by the area's resident population as of July 1.

TOTAL PERSONAL INCOME IN GEORGIA

Georgia's total personal income (TPI) has grown from $14.3 billion in 1969 to $87.7 billion in 1987 (Figure1). Its annual average rates of growth for 1969-86 and 1979-86 were second only to Florida's in the twelve-state Southeast (Table 1), higher than those of the Southeast as a whole, and substantially above those for the entire U.S. Although the state's growth slowed in 1985-86 and 1986-87, it continued to outperform the region and nation.

TPI in Georgia's eight MSAs grew at annual average rates ranging from Atlanta's 11.7 percent to Columbus' 7.9 percent over 1969-86 (Table 2). As expected, Atlanta dominated the group in total amounts throughout the period, accounting for 44.9 percent of the state's TPI in 1969 and 51.2 percent in 1986. Growth in 1985-86, the latest years available, was highest in the Athens MSA (10.6 percent) and lowest in the Albany MSA (4.9 percent), with Atlanta second at 9.9 percent.

The thirty-eight metropolitan counties together accounted for 68.9 percent of total personal income in 1969 and 71.4 percent in 1986. Metropolitan TPI grew at an annual average rate of 11 percent in 1969-86 and 1979-86, slowing to 9.3 percent in 1985-86. The 121 nonmetropolitan counties shared 31.1 percent of total personal income in 1969, dropping to 28.6 percent in 1986. Their annual average growth rates were 10.3 percent for the seventeen-year period , 9 percent for 1979-86, and 7.3 percent for 1985-86.

COUNTY TPI

Although Fulton, DeKalb and eight other metropolitan counties consistently led the state in *amount* of total personal income (Table 3), a nonmetropolitan county (Liberty) contributed one of the highest annual average *rates of growth* for 1969-86, and three did so for the 1979-86 period (Dawson, Camden, and White counties). For 1985-86, however, eight of the ten top counties were nonmetropolitan, with only Gwinnett and Cobb counties appearing from the metropolitan group. Fayette's annual average rate of 19.3 percent placed it first in the state in 1969-86, followed by Gwinnett with 19 percent. The two counties switched positions in 1979-86 by a very small margin (Gwinnett, 17.4 percent and Fayette 17.3 percent).

Figure 1

Total Personal Income in Georgia, 1969-1987(p)

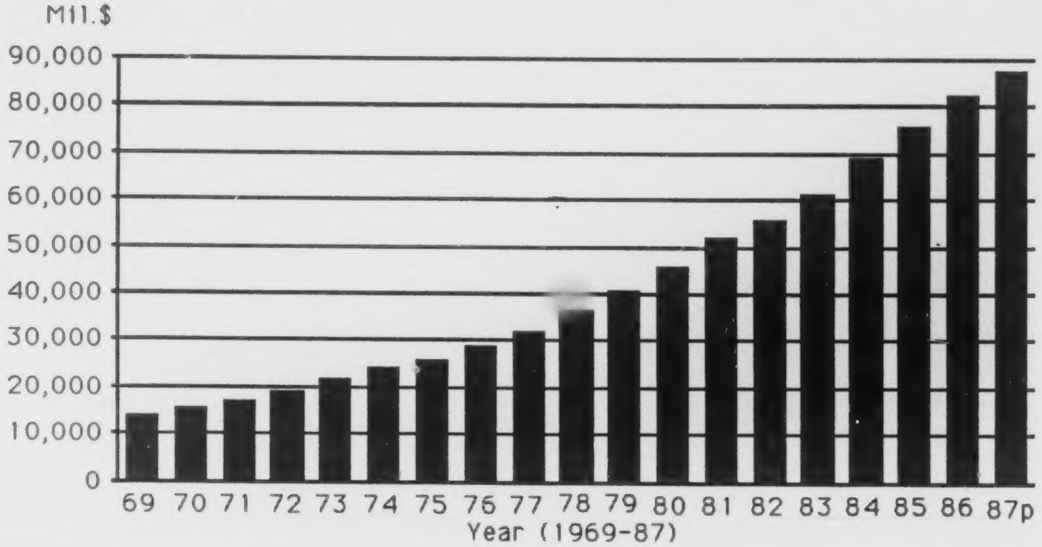

Table 1

Total Personal Income and Annual Average Rates of Growth,
Selected Years, U.S., Southeast, and Southeastern States
(Income in millions of current dollars; rates in percent)

Area	1969	1979	1985	1986	1987[p]	Annual Average % Change from: 1969-1986	Annual Average % Change from: 1979-1986	% Change from: 1985-1986	% Change from: 1986-1987[p]
United States	766,522	2,028,510	3,320,346	3,528,589	3,733,719	9.4	8.2	6.3	5.8
Southeast	132,376	398,994	681,750	727,287	772,119	10.5	9.0	6.7	6.2
Alabama	9,374	27,333	43,225	45,854	48,098	9.8	7.7	6.1	4.9
Arkansas	4,974	15,761	24,846	26,194	27,090	10.3	7.5	5.4	3.4
Florida	23,916	82,566	157,944	170,809	183,239	12.3	10.9	8.1	7.3
Georgia	14,328	41,025	75,513	82,103	87,720	10.8	10.4	8.7	6.8
Kentucky	9,357	26,912	40,343	42,260	44,541	9.3	6.7	4.8	5.4
Lousiana	10,400	31,740	50,544	50,376	50,681	9.7	6.8	-0.3	0.6
Mississippi	5,256	16,150	24,242	25,454	26,781	9.7	6.7	5.0	5.2
North Carolina	15,116	42,336	73,098	78,745	84,366	10.2	9.3	7.7	7.1
South Carolina	7,144	21,267	35,797	38,102	40,610	10.3	8.7	6.4	6.6
Tennessee	11,439	33,508	53,864	57,609	61,842	10.0	8.0	7.0	7.3
Virgina	16,247	46,392	82,850	89,593	96,361	10.6	9.9	8.1	7.6
West Virginia	4,826	14,004	19,485	20,188	20,791	8.8	5.4	3.6	3.0

[p] Preliminary.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Personal Income, for States and Regions, Table SA1, April 1988. Rates of growth computed by Division of Research, College of Business Administration, University of Georgia.

Dawson, with a one-year percentage increase of 15.8 percent, and Banks, with 13.8 percent, led in1985-86.

The ten counties with the lowest total personal income *amounts* were for the most part lightly-populated and located away from major cities or travel routes. Quitman County ranked lowest in 1969; Echols, in 1979, 1985, and 1986. Surprisingly, three metropolitan counties (Walker, Muscogee and Chattahoochee) registered among the ten lowest annual average *rates of growth* in TPI for 1969-86. In descending order, 25 percent of Georgia's counties had 1969-86 annual average growth rates of 19.3 to 11.4 percent; the second quartile had rates of 11.4 to 10.3; the third, of 10.2 to 9.4 percent, and the lowest, 9.4 to 5.8 percent. Sixty counties in all had annual average growth rates above the state rate for the period, with 99 below it (Table 4).

For 1979-86, the lowest growth rates included that of Dade County, part of the Chattanooga MSA. Although only two counties in Georgia suffered actual losses in TPI during 1985-86, 109 (68.6 percent) grew at less than the percentage rate of increase for Georgia as a whole. The ten slowest - growing counties were all nonmetropolitan.

PER CAPITA PERSONAL INCOME

Although Georgia's average per capita personal income (PCPI) exceeded the average for the twelve southeastern states from 1969 through 1976 and again from 1982 through 1987 (Figure 2), it has remained below the U.S. average. The gap is narrowing, however: Georgia's PCPI of $3,148 was 83 percent of the U.S. average in 1969, but its preliminary 1987 value of $14,098 was 92 percent of the national average. Compared to the other southeastern states, Georgia's PCPI ranked third in both 1969 and 1987. Its national rank of 27th in 1987 was exceeded by Virginia's 10th place and Florida's 19th. The lag in per capita personal income for the Southeast as a whole is not surprising, since the region includes seven states ranking 41st or lower, as well as two ranked in the mid-30's (Table 5).

Over 1969-86, Georgia's annual average rate of growth in PCPI was 8.9 percent, above the regional and national rates, but below Virginia's, and tied with Florida's. For 1979-86, all rates were generally lower, but Georgia at 8.5 percent tied with Virginia for first place in the region. Single year rates for 1985-86 and 1986-87 show a declining rate of growth for the nation, region, and most of the southeastern states, with Georgia (4.7 percent) falling slightly below national and regional rates in 1986-87.

PCPI IN METROPOLITAN AREAS

The Atlanta MSA consistently has had the highest PCPI, but the relative positions of the other MSAs have shifted over time. In 1969, for example, the Columbus MSA ranked second among the state's MSAs; by 1979 it ranked last, and remained in that position in 1986 (Table 6). In 1986, the Atlanta MSA's PCPI ranked 44th in the U.S., Savannah's was 172nd, and the remaining areas fell into the 200s (Table 7).

In annual average rates of growth, both the Athens and Albany MSAs outgrew Atlanta during 1969-86, with rates of 9.5 percent and 9.1 percent, respectively. Athens again led for 1979-86 (8.8 percent) and 1985-86 (9 percent). Atlanta, second for 1979-86, fell to fifth in 1985-1986, its rate of 6 percent surpassed by Athens, Chattanooga, Savannah, and Macon. Only the Atlanta MSA's PCPI has climbed past the national average, however. It stood at 101 percent of the U.S. value in 1969, and increased to112 percent in 1986. The Albany and Columbus MSAs, at 76 percent of the national average in 1986, remain the lowest in the state. The Athens MSA 's PCPI gain of 15 percentage points relative to the national average over 1969-1986 contrasts with the Columbus MSA's loss of 9 points.

The concentration of total personal income in Georgia's metropolitan counties is reflected in the average of per capita personal income values for the 38 counties, which stood at 102 percent of the U.S. average in1986, up from 93 percent in 1969. The PCPI for nonmetropolitan counties as a whole also increased, from 66 percent of the U.S. average in 1969 to 74 percent in 1986, but the percentage point gap between the two groups grew slightly (from 27 to 28 percentage points). Over 1969-89, however, the annual average rate of growth in PCPI was slightly higher for nonmetropolitan counties (8.9 percent versus 8.8 percent for MSA counties). The 8 percent nonmetropolitan rate was below that of metropolitan areas (8.6 percent) in 1979-86, but was only slightly lower in 1985-86 (6.2 percent versus 6.3 percent for MSA counties).

COUNTY PCPI LEADERS

County per capita personal income in 1969 ranged from $1,579 to $4,208 (2.7 times the lowest value); by 1986, growth and inflation had narrowed the relative range slightly, from $7,545 to $18,277 (2.4 times the lowest value). As Table 8 indicates, nine of the ten counties with the highest PCPI values in 1969 were metropolitan. Whitfield County, the center of the state's carpet industry, was the exception. In 1979, Glascock was the single nonmetropolitan county among the leaders (probably reflecting a surge in farm income combined with a slight decline in population, compared to 1969). By 1986, the leading counties were again metropolitan, with eight of the ten located in the Atlanta MSA. DeKalb, the top county in 1969, was supplanted by Fayette in 1979 and by Cobb in 1986.

Four counties in Georgia exceeded the national average PCPI in 1969: Cobb, with 104 percent; DeKalb, 111 percent; Fayette, 101 percent; and Fulton, 108 percent. By 1986, six counties, all in the Atlanta MSA, met or exceeded the U.S. average and for four, the difference had widened

Continued on page 17
Tables continued on page 12

Ninth in a
continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

The Metropolitan Atlanta Region

The Metropolitan Atlanta region is located in the north central area of the state (see map). It is bordered by the Northeast Piedmont, North, Northwest, Southwest Piedmont, Macon, and East Central regions. Atlanta is the hub of the Southeast and the capital of Georgia. Educational institutions in the region include Georgia Tech, Emory University, Georgia State University, and Atlanta University. There are also three military installations: Fort McPherson, Dobbins Air Force Base, and Fort Gillem.

Unlike most regions in the state, the Atlanta metropolitan region is not dependent on a few industries for its economic vitality (Table 1). Because its industrial base is the most diversified in the state, the unemployment rate here is lower than in any other region. Unemployment ranged from a high of 6.6 percent to a low of 4.6 percent, and averaged 5.4 percent between 1980 and 1986, the lowest in the state. The region's labor force, which accounts for almost half of Georgia's entire civilian labor force, grew at an annual rate of 3.5 percent between 1980 and 1987 (Table 2).

The Atlanta region is the transportation and distribution center of the Southeast. Hartsfield International Air-

Table 1

Metropolitan Atlanta Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
Industry	1-19	20-99	100-249	Over 250	Total
Food & kindred products	63	47	14	20	144
Tobacco manufactures	0	0	0	0	0
Textile mill products	33	17	10	11	71
Apparel & other textile products	72	49	31	12	164
Lumber & wood products	177	25	2	1	205
Furniture & fixtures	72	26	9	1	108
Paper & allied products	30	48	29	6	104
Printing & publishing	533	85	17	8	643
Chemicals & allied products	114	63	12	6	195
Petroleum & coal products	23	10	0	0	33
Rubber & misc. plastics products	72	51	15	0	138
Leather & leather products	12	3	2	0	17
Stone, clay, and glass products	107	44	6	4	161
Primary metal industries	21	9	2	3	35
Fabricated metal products	171	86	16	2	275
Machinery, except electrical	243	68	14	5	330
Electric & electronic equipment	68	33	13	11	125
Transportation equipment	40	17	4	6	67
Instruments and related products	38	13	3	2	56
Misc. manufacturing industries	89	20	4	0	113
Total number of plants	1,978	714	194	98	2,984

Source: U.S. Department of Commerce, *Census of Manufacturing*, 1982 port is the busiest airport in the country; three interstate highways intersect in the city. The transportation, distribution, and service sectors are so dominant that the Atlanta region has a lower concentration of manufacturing employment than most metropolitan areas in the country. For example, only 14.1 percent of Atlanta's labor force is employed in manufacturing compared to 27.5 percent for Charlotte, 18.4 percent for Philadelphia, 21 percent for Boston, and 23 percent for Los Angeles.

Table 2

Civilian Labor Force
Metro Atlanta

Year	Employed	Unemployed	Total
1980	1,022,719	59,090	1,081,509
1981	1,051,987	62,322	1,114,309
1982	1,073,621	75,759	1,149,380
1983	1,102,106	75,255	1,177,361
1984	1,171,764	59,232	1,230,996
1985	1,160,533	64,622	1,225,155
1986	1,327,568	63,569	1,391,137
1987	1,310,414	63,260	1,373,674

Source: Georgia Dept. of Labor, Labor Information System.

Retail sales in the Atlanta metropolitan region dominate the sales levels of all other regions in Georgia (Table 3). The counties with the highest level of retail sales include Fulton, Cobb, DeKalb, Clayton, and Gwinnett with Interstates 85, 20 and 75 providing easy access to the Atlanta shopping areas from many parts of Georgia. There are at least 22 large shopping districts outside the central business district in the Atlanta region, and Atlanta trade areas include parts of the Northwest Piedmont, North, Northwest, Southwest Piedmont, and East Central regions.

Between 1980 and 1986, residential construction in the metro Atlanta region ranged from a low of 19,087 units in 1981 to a high of 52,454 units in 1986 (Table 4). This was a compound annual rate of growth of 15 percent. Nonresidential construction was dominated by office, bank, and professional buildings construction. The value of office construction was greater than that of industrial or retail store construction for each year of the period and reached a peak in 1984. Between 1980 and 1986, the value of office construction grew at an annual rate of 8.8 percent.

Table 4 also shows that industrial construction in the region exhibited an upward trend between 1980 and 1986. It peaked in 1985, and grew at an annual rate of 14 percent. Similarly, retail store construction peaked in 1985, but with a smaller base it showed the greatest average annual rate of growth: 23 percent.

Table 3

Atlanta Metro Region
Retail Shopping Centers, 1982

	# of Stores	Sales ($000)
Central Business District	397	$238,476
Center 1	212	245,456
Center 2	188	268,646
Center 3	64	38,965
Center 4	44	35,890
Center 5	146	184,256
Center 6	51	58,438
Center 7	179	249,420
Center 8	106	93,642
Center 9	275	546,818
Center 10	86	90,822
Center 11	81	94,665
Center 12	65	89,495
Center 13	114	102,700
Center 14	109	103,705
Center 15	55	37,016
Center 16	84	71,736
Center 17	78	66,352
Center 18	175	243,253
Center 19	143	191,700
Center 20	295	289,463
Center 21	46	38,347
Center 22	96	68,399
MSA	16,422	

Source: Department of Commerce, Bureau of the Census.

In our previous reports on Georgia's regions, we have tried to relate size in some way to the state average. Now we compare all regions with each other because Atlanta's dominance is more easily appreciated with such a comparison. Table 5 shows the regions listed in order of their average annual civilian labor force increases from 1980 through 1986. Other data include the average annual number of housing units for which permits were authorized and the average annual value of construction in industrial buildings, office buildings, and retail buildings authorized by building permits in each region.

The dominance of Atlanta is clear. Although Atlanta comprises 45 percent of the Georgia labor force, its annual increase in the labor force is 63 percent of the state increase. This region accounted for 67 percent of the state's increase in housing units, 61 percent of the state's increase in industrial construction, 62 percent of the increase in retail construction, and 81 percent of the increase in office construction.

One would expect a clear relation between increase in the labor force and construction in each of the regions. But the relationships are not simple and straightforward. Areas with a larger stock of housing units, offices, retail stores, and industrial plants will require more new construction just to

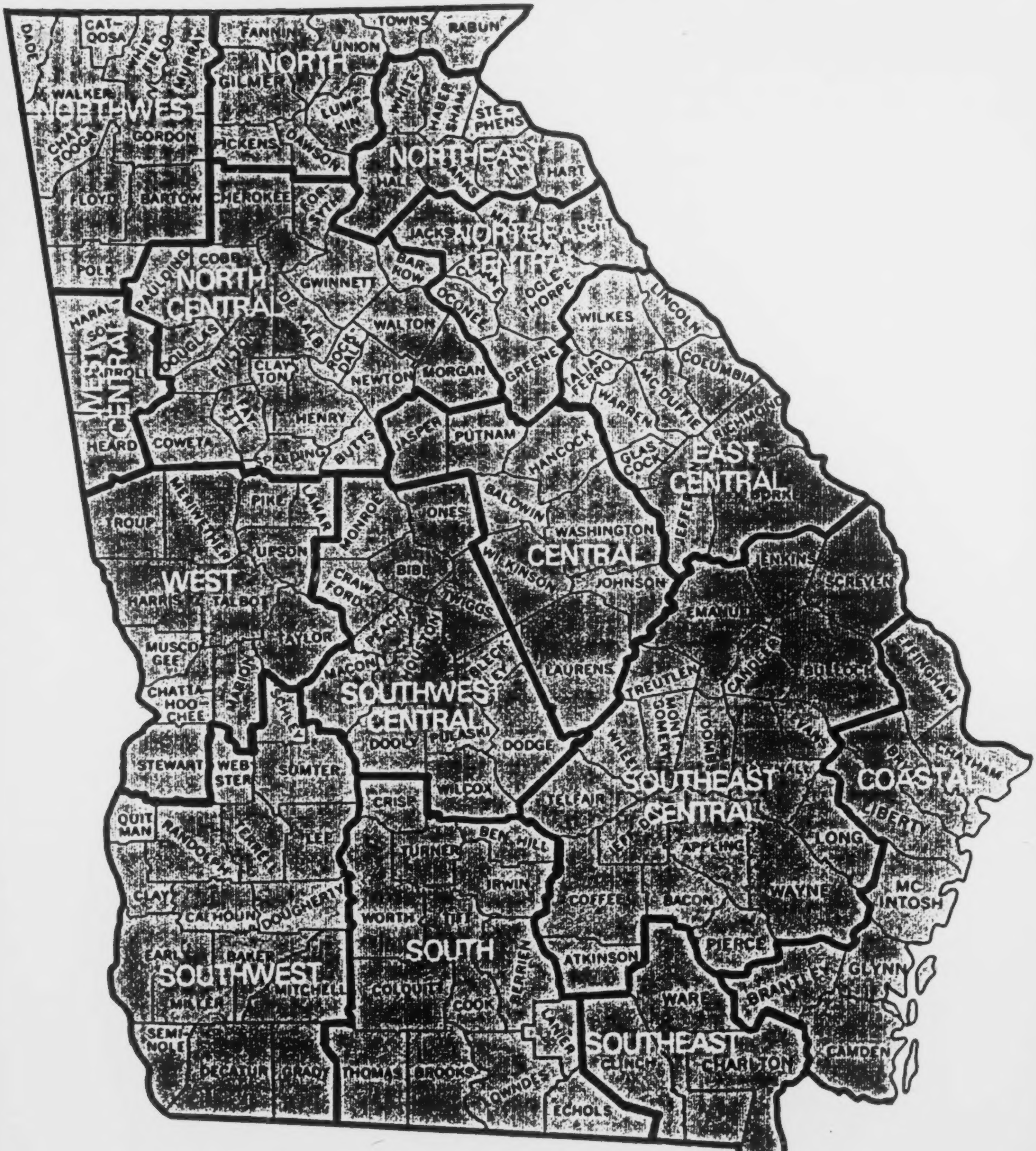
NORTHWEST
NORTH
NORTHEAST
NORTHEAST CENTRAL
NORTH CENTRAL
WEST CENTRAL
EAST CENTRAL
WEST
CENTRAL
SOUTHWEST CENTRAL
SOUTHEAST CENTRAL
COASTAL
SOUTHWEST
SOUTH
SOUTHEAST
DADE
CATOOSA
WHITFIELD
MURRAY
WALKER
CHATTOOGA
GORDON
FLOYD
BARTOW
POLK
FANNIN
TOWNS
UNION
RABUN
GILMER
LUMPKIN
WHITE
HABERSHAM
STEPHENS
PICKENS
DAWSON
CHEROKEE
FORSYTH
HALL
BANKS
FRANKLIN
HART
JACKSON
MADISON
ELBERT
BARROW
CLARKE
OGLETHORPE
OCONEE
COBB
PAULDING
GWINNETT
DE KALB
HARALSON
CARROLL
DOUGLAS
FULTON
CLAYTON
ROCKDALE
WALTON
NEWTON
MORGAN
FAYETTE
HENRY
COWETA
HEARD
SPALDING
BUTTS
WILKES
LINCOLN
GREENE
TALIAFERRO
MC DUFFIE
COLUMBIA
WARREN
RICHMOND
GLASCOCK
JEFFERSON
BURKE
JASPER
PUTNAM
HANCOCK
BALDWIN
WASHINGTON
JONES
TROUP
MERIWETHER
PIKE
LAMAR
UPSON
MONROE
BIBB
CRAWFORD
TWIGGS
WILKINSON
JOHNSON
HARRIS
TALBOT
TAYLOR
PEACH
HOUSTON
BLECKLEY
LAURENS
MUSCOGEE
MARION
MACON
CHATTAHOOCHEE
SCHLEY
DOOLY
PULASKI
DODGE
STEWART
WEBSTER
SUMTER
WILCOX
JENKINS
SCREVEN
EMANUEL
BULLOCH
EFFINGHAM
TREUTLEN
MONTGOMERY
TOOMBS
CANDLER
EVANS
WHEELER
TATTNALL
BRYAN
CHATHAM
TELFAIR
JEFF DAVIS
APPLING
LONG
LIBERTY
CRISP
BEN HILL
TURNER
IRWIN
QUITMAN
RANDOLPH
TERRELL
LEE
CLAY
CALHOUN
DOUGHERTY
WORTH
TIFT
COFFEE
BACON
WAYNE
MC INTOSH
EARLY
BAKER
MILLER
MITCHELL
COLQUITT
COOK
BERRIEN
ATKINSON
PIERCE
WARE
BRANTLEY
GLYNN
SEMINOLE
DECATUR
GRADY
THOMAS
BROOKS
LOWNDES
LANIER
ECHOLS
CLINCH
CHARLTON
CAMDEN

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Table 4

Building Permits
Metro Atlanta

	Residential		Value of Construction		
Year	Single	Total	Industrial	Office	Retail
1980	16,654	22,643	$ 92,727,903	$265,552,009	$ 79,031,766
1981	13,018	19,087	92,902,762	250,380,373	86,884,258
1982	17,704	24,814	82,271,547	186,435,812	47,730,808
1983	29,647	45,640	120,440,913	387,834,619	105,808,270
1984	31,460	50,080	157,737,032	587,873,078	185,720,195
1985	32,302	49,862	267,139,069	473,062,805	377,553,493
1986	34,828	52,454	203,578,428	439,342,461	272,860,479
Total	175,615	264,580	1,016,797,656	2,590,481,157	1,155,589,269

Source: U.S. Dept. of Commerce, Bureau of the Census.

Table 5

Comparison of Construction and Labor Force Annual Changes
Between Atlanta and the Other Regions of Georgia, 1980-1986

			Average Annual Value Per Year (millions of dollars)		
Region	Average Increase Civilian Labor Force Per Year	Average Number House Units Per Year	Industrial Building	Office Building	Retail Building
Atlanta	51,555	37,797	$145.3	$370.1	$165.1
East Central	6,683	1,135	2.0	2.9	6.6
Northeast Piedmont	4,118	2,106	11.0	6.8	13.7
Macon	2,561	1,803	5.1	4.7	6.9
Savannah	2,387	2,046	15.5	11.7	13.6
South Central Coastal Plain	2,258	1,449	6.6	17.0	12.2
Augusta	1,931	2,548	5.4	7.3	6.5
Southwest Piedmont	1,753	1,279	12.0	1.8	4.6
Northwest	1,625	1,040	13.4	3.2	5.6
Coastal	1,582	1,412	4.9	2.1	8.7
Columbus	1,374	897	6.2	5.5	4.9
Albany	1,009	637	1.2	2.0	4.3
Southwest Coastal Plain	952	341	1.7	0.7	2.4
North	840	287	0.1	2.1	0.6
Southeast	569	158	0.4	0.7	1.3
Chattanooga	148	189	1.3	0.6	1.1
Total Outside Atlanta	29,790	18,435	$91.7	$85.4	$102.8

Source: Computed from data provided by the Department of Commerce, Bureau of the Census, and the Georgia Department of Labor.

take care of destruction and obsolescence. Demand for new houses may not come just from new jobs. People may migrate to a region to retire on pension. Thus, climate, and not jobs, may influence construction. New jobs may be created and filled by workers previously not in the work force or in agriculture. These people would not require new housing, so jobs could increase without an accompanying demand for housing. In some regions, mobile homes may be more important than on-site construction, which building permits measure.

For example, it is apparent that in spite of large increases in employment, the East Central region is not generating new construction. This is a poor area in which mobile homes dominate on-site construction of housing. Growth in employment is from the lumber sector, but manufacturing plants in the area produce apparel and textiles, which are slow growing or declining sectors. Unemployment is high in this region, in spite of the I-16 corridor between Savannah and Macon.

The Northeast Piedmont includes the University of Georgia and the I-85 corridor to South Carolina, and is adjacent to the metro Atlanta region. All of these factors enhance its growth potential. It ranks second in retail construction, third in housing, and fifth in industrial buildings and office construction.

The Macon, Savannah, and the South Central Coastal Plain regions each had about the same average increase in employment. Residential construction was more important in Savannah, as was industrial and retail construction. Office building construction, however, was most important in the South Central Coastal Plain. Macon was ahead of the South Central Coastal Plain in housing, but behind in everything else. The South Central Coastal Plain region is on the I-75 corridor to Florida. Savannah, Georgia's port city, is also the second most important economic center in the state.

Augusta ranks seventh in employment growth, but second in housing. In fact, the average increase in housing units is greater than that of employment. Perhaps that is because it borders South Carolina, and many workers may live in Georgia but work outside the state.

Other points of interest are that the Southwest Piedmont, the Northwest and Columbus regions have an unusually high level of industrial construction relative to employment growth. Notice that two are adjacent to Atlanta and include the I-75 corridor north as well as I-20 west and highways to Columbus from Atlanta.

The Coastal Region ranked tenth in average employment growth, but fifth in retail construction, which is due to its important tourist trade and the I-95 corridor to Florida. Perhaps, like Florida, it is benefitting from migration of retirees on pension.

The comparison in Table 5 adds to the discussion of whether there are two Georgias. The scale of activity in the Atlanta region is eight to twenty-five times that of any other region. The second most important area is Savannah. The third group of important economic regions are the Northeast Piedmont, the Northwest, the Southwest Piedmont, Macon, the South Central Coastal Plain, the Coastal Region and Columbus. Thus, the state may be thought of as four economic growth regions. The three just mentioned and the rest of Georgia as the fourth.

Continued from page 6

Table 2

Total Personal Income, Rank in 1986, and Annual Average Rates of Growth, Selected Periods, Georgia and Local Areas
(TPI in millions of dollars; rates in percent)

	1969	1979	1985	1986	Annual average % change in: 1969-86	Annual average % change in: 1979-86	% change 1985-86	TPI Rank 1986
MSA								
Albany, GA	242.3	750.4	1,250.6	1,312.1	10.4	8.3	4.9	8
Athens, GA	279.0	849.4	1,564.5	1,730.6	11.3	10.7	10.6	7
Atlanta, GA	6,429.4	19,232.0	38,221.3	42,012.1	11.7	11.8	9.9	1
Augusta, GA	921.4	2,420.5	4,480.8	4,835.7	10.2	10.4	7.9	3
Chattanooga, TN-GA	1,195.5	3,273.9	4,961.3	5,333.1	9.2	7.2	7.5	2
Columbus, GA-AL	762.5	1,602.7	2,618.3	2,789.1	7.9	8.2	6.5	6
Macon-Warner Robins, GA	751.0	1,915.7	3,277.4	3,509.2	9.5	9.0	7.1	4
Savannah, GA	639.7	1,752.7	2,964.2	3,200.6	9.9	9.0	8.0	5
Metropolitan Counties	9,872.8	28,160.3	53,612.2	58,612.6	11.0	11.0	9.3	--
Nonmetropolitan Counties	4,454.9	12,865.0	21,900.8	23,490.2	10.3	9.0	7.3	--
COUNTY								
Appling	25.5	86.2	159.2	179.3	12.2	11.0	12.6	80
Atkinson	11.7	31.0	59.0	65.9	10.7	11.4	11.6	139
Bacon	19.1	49.4	83.6	90.8	9.6	9.1	8.7	120
Baker	6.9	22.6	36.6	37.4	10.5	7.5	2.4	153
Baldwin	71.3	223.9	396.2	431.9	11.2	9.8	9.0	34
Banks	14.4	47.8	93.5	106.5	12.5	12.1	13.8	108
Barrow	48.7	140.9	285.4	315.9	11.6	12.2	10.7	47
Bartow	94.9	271.4	489.2	515.4	10.5	9.6	5.4	30
Ben Hill	31.9	93.2	161.1	170.3	10.4	9.0	5.7	82
Berrien	30.7	80.9	128.1	135.6	9.1	7.7	5.9	93
Bibb	474.1	1,117.8	1,872.8	1,988.9	8.8	8.6	6.2	9
Bleckley	26.8	67.9	107.0	112.3	8.8	7.4	4.9	105
Brantley	14.8	45.4	81.0	87.6	11.0	9.8	8.0	124
Brooks	30.3	70.0	117.0	121.2	8.5	8.2	3.5	103
Bryan	14.7	60.9	121.6	131.0	13.7	11.6	7.7	95
Bulloch	62.0	204.4	354.2	377.8	11.2	9.2	6.6	41
Burke	40.3	124.0	199.8	215.5	10.4	8.2	7.9	61
Butts	25.9	87.2	155.3	164.7	11.5	9.5	6.0	83
Calhoun	12.4	29.6	54.0	54.5	9.1	9.1	0.9	145
Camden	28.5	88.7	194.7	215.1	12.6	13.5	10.5	62
Candler	14.9	42.6	68.9	74.9	9.9	8.4	8.6	134
Carroll	117.5	375.5	687.5	747.4	11.5	10.3	8.7	22
Catoosa	81.8	235.5	372.3	400.9	9.8	7.9	7.7	36
Charlton	11.4	43.1	76.9	83.3	12.4	9.9	8.3	127
Chatham	605.1	1,632.4	2,753.5	2,970.6	9.8	8.9	7.9	5
Chattahoochee	69.2	96.7	169.8	181.1	5.8	9.4	6.6	78
Chattooga	53.9	137.3	197.7	212.4	8.4	6.4	7.5	63
Cherokee	93.6	364.4	899.6	1,001.8	15.0	15.5	11.4	13
Clarke	175.3	505.5	903.8	997.0	10.8	10.2	10.3	14
Clay	5.9	14.9	24.3	24.9	8.8	7.7	2.8	156

(continued)

Table 2 (continued)

	1969	1979	1985	1986	Annual average % change in: 1969-86	Annual average % change in: 1979-86	% change 1985-86	TPI Rank 1986
Clayton	333.1	1,202.5	2,125.4	2,269.0	11.9	9.5	6.8	7
Clinch	13.9	35.2	58.8	60.2	9.0	8.0	2.4	141
Cobb	756.1	2,825.3	6,399.1	7,168.8	14.1	14.2	12.0	3
Coffee	54.9	148.4	259.7	287.0	10.2	9.9	10.5	49
Colquitt	83.3	221.9	374.9	394.7	9.6	8.6	5.3	38
Columbia	71.1	289.2	693.7	768.4	15.0	15.0	10.8	21
Cook	29.9	73.8	118.3	127.5	8.9	8.1	7.8	100
Coweta	95.8	290.7	540.9	578.4	11.2	10.3	6.9	28
Crawford	13.0	47.9	78.7	84.3	11.6	8.4	7.0	125
Crisp	41.3	114.6	180.0	191.7	9.5	7.6	6.5	73
Dade	22.7	70.8	100.0	103.9	9.4	5.6	3.9	109
Dawson	10.7	31.1	72.7	84.1	12.9	15.3	15.8	126
Decatur	46.6	150.1	243.7	266.1	10.8	8.5	9.2	51
DeKalb	1,722.1	4,640.7	8,434.2	9,331.6	10.5	10.5	10.6	2
Dodge	35.7	101.2	156.8	161.6	9.3	6.9	3.0	84
Dooly	23.4	59.0	102.5	100.9	9.0	8.0	-1.6	112
Dougherty	225.5	676.8	1,101.1	1,152.3	10.1	7.9	4.7	11
Douglas	85.5	390.2	794.6	868.4	14.6	12.1	9.3	17
Early	26.4	71.0	120.7	128.3	9.8	8.8	6.3	98
Echols	3.8	11.2	18.5	18.1	9.6	7.1	-2.1	159
Effingham	34.6	120.3	210.7	230.1	11.8	9.7	9.2	56
Elbert	44.9	123.5	196.9	207.0	9.4	7.7	5.1	64
Emanuel	37.2	116.3	181.0	192.4	10.1	7.5	6.3	72
Evans	16.8	52.5	88.1	99.4	11.0	9.6	12.8	113
Fannin	27.9	78.9	137.4	145.3	10.2	9.1	5.8	88
Fayette	41.7	274.7	755.6	841.0	19.3	17.3	11.3	18
Floyd	224.2	588.4	920.5	986.2	9.1	7.7	7.1	15
Forsyth	51.1	212.3	492.2	547.9	15.0	14.5	11.3	29
Franklin	31.0	92.0	166.8	187.1	11.2	10.7	12.2	75
Fulton	2,517.3	5,833.7	10,390.4	11,241.4	9.2	9.8	8.2	1
Gilmer	22.5	68.8	127.2	141.3	11.4	10.8	11.1	91
Glascock	5.6	17.8	24.9	26.5	9.6	5.9	6.6	154
Glynn	152.5	440.0	746.4	800.4	10.2	8.9	7.2	19
Gordon	68.7	189.3	337.1	376.0	10.5	10.3	11.6	43
Grady	41.3	111.1	189.2	201.5	9.8	8.9	6.5	68
Greene	20.9	59.6	110.2	121.3	10.9	10.7	10.1	102
Gwinnett	233.9	1,468.3	4,003.9	4,509.6	19.0	17.4	12.6	4
Habersham	50.3	151.6	277.9	309.5	11.3	10.7	11.4	48
Hall	180.5	558.2	1,066.7	1,167.1	11.6	11.1	9.4	10
Hancock	15.3	45.2	73.8	78.9	10.1	8.3	6.9	130
Haralson	49.4	125.0	214.5	227.9	9.4	9.0	6.3	57
Harris	32.4	103.6	187.9	200.8	11.3	9.9	6.9	69
Hart	39.8	117.1	205.9	221.8	10.6	9.6	7.7	59
Heard	11.4	38.0	67.2	72.5	11.5	9.7	8.0	135
Henry	70.0	283.7	597.6	643.5	13.9	12.4	7.7	24

(continued)

Table 2 (continued)

	1969	1979	1985	1986	Annual average % change in: 1969-86	Annual average % change in: 1979-86	% change 1985-86	TPI Rank 1986
Houston	195.1	564.0	995.9	1,067.5	10.5	9.5	7.2	12
Irwin	19.4	51.2	88.7	89.3	9.4	8.3	0.7	122
Jackson	52.4	152.3	298.8	330.8	11.4	11.7	10.7	45
Jasper	15.7	53.4	88.4	98.0	11.4	9.1	10.9	114
Jeff Davis	26.1	77.8	124.1	129.3	9.9	7.5	4.2	97
Jefferson	36.5	108.8	168.0	176.7	9.7	7.2	5.2	81
Jenkins	17.3	47.3	75.8	80.2	9.4	7.8	5.8	129
Johnson	15.9	49.6	78.2	81.2	10.1	7.3	3.8	128
Jones	33.1	104.1	197.1	218.8	11.8	11.2	11.0	60
Lamar	26.3	78.7	132.2	143.6	10.5	9.0	8.6	90
Lanier	13.3	32.3	49.3	49.7	8.1	6.3	0.9	148
Laurens	77.6	252.3	388.3	408.5	10.3	7.1	5.2	35
Lee	16.8	73.6	149.5	159.7	14.2	11.7	6.8	85
Liberty	40.7	199.2	384.2	432.8	14.9	11.7	12.6	33
Lincoln	15.0	39.0	65.4	68.2	9.3	8.3	4.2	138
Long	7.0	22.1	40.4	45.3	11.6	10.8	12.2	150
Lowndes	154.5	449.1	748.7	776.6	10.0	8.1	3.7	20
Lumpkin	21.7	65.4	129.7	144.9	11.8	12.0	11.7	89
McDuffie	43.4	116.3	189.3	197.1	9.3	7.8	4.2	96
McIntosh	12.2	42.3	74.5	78.8	11.6	9.3	5.8	65
Macon	25.6	71.5	121.8	130.8	10.1	9.0	7.4	146
Madison	31.5	102.4	184.3	204.5	11.6	10.4	10.9	71
Marion	11.2	26.7	48.7	54.0	9.7	10.6	10.8	131
Meriwether	44.1	120.8	192.8	202.3	9.4	7.7	4.9	67
Miller	13.8	41.2	61.0	64.3	9.5	6.6	5.4	140
Mitchell	45.9	117.0	174.2	189.7	8.7	7.1	8.9	74
Monroe	30.2	94.1	171.2	186.5	11.3	10.3	8.9	76
Montgomery	13.9	42.7	65.6	69.1	9.9	7.1	5.2	137
Morgan	25.0	77.1	139.3	150.5	11.1	10.0	8.0	87
Murray	33.9	120.6	209.5	230.3	11.9	9.7	9.9	55
Muscogee	580.3	1,230.7	2,012.6	2,161.4	8.0	8.4	7.4	8
Newton	73.0	230.8	444.9	478.7	11.7	11.0	7.6	31
Oconee	19.7	89.1	177.7	198.4	14.5	12.1	11.7	70
Oglethorpe	15.6	51.7	87.6	96.8	11.3	9.4	10.4	115
Paulding	45.2	161.8	342.4	376.4	13.3	12.8	9.9	42
Peach	48.7	129.8	211.7	234.0	9.7	8.8	10.5	54
Pickens	24.8	75.5	145.4	158.8	11.5	11.2	9.2	86
Pierce	25.3	62.9	106.8	109.3	9.0	8.2	2.3	107
Pike	16.7	59.3	94.9	101.3	11.2	7.9	6.7	111
Polk	76.1	213.7	335.0	350.6	9.4	7.3	4.7	44
Pulaski	23.8	55.2	87.6	91.7	8.3	7.5	4.7	118
Putnam	21.2	64.4	119.8	128.1	11.2	10.3	6.9	99
Quitman	3.5	11.3	19.5	21.0	11.1	9.3	7.3	158
Rabun	17.9	57.3	102.4	110.7	11.3	9.9	8.1	106
Randolph	19.2	46.2	73.8	76.5	8.5	7.5	3.6	133

(continued)

Table 2 (continued)

	1969	1979	1985	1986	Annual average % change in: 1969-86	Annual average % change in: 1979-86	% change 1985-86	TPI Rank 1986
Richmond	512.3	1,247.6	2,239.0	2,438.8	9.6	10.0	8.9	6
Rockdale	55.3	291.1	630.5	692.1	16.0	13.2	9.8	23
Schley	7.8	21.4	35.3	38.5	9.8	8.7	8.9	152
Screven	24.9	82.5	131.1	134.2	10.4	7.2	2.4	94
Seminole	17.3	52.3	85.6	91.0	10.2	8.2	6.4	119
Spalding	115.6	331.9	567.2	595.6	10.1	8.7	5.0	27
Stephens	53.0	144.4	220.8	235.8	9.2	7.3	6.8	53
Stewart	14.6	30.3	45.5	48.5	7.3	7.0	6.6	149
Sumter	70.8	179.3	307.5	328.0	9.4	9.0	6.7	46
Talbot	12.5	32.9	57.7	59.8	9.6	8.9	3.6	142
Taliaferro	4.9	13.1	22.7	24.3	10.0	9.2	7.3	157
Tattnall	33.0	93.5	163.1	181.5	10.5	9.9	11.3	77
Taylor	17.5	48.4	73.2	76.8	9.1	6.8	4.9	132
Telfair	26.9	62.1	96.8	103.2	8.2	7.5	6.6	110
Terrell	24.8	58.2	88.6	94.1	8.1	7.1	6.2	117
Thomas	92.6	255.5	412.1	443.1	9.6	8.2	7.5	32
Tift	69.5	205.9	368.1	387.3	10.6	9.4	5.2	39
Toombs	43.6	134.9	239.1	259.5	11.1	9.8	8.5	52
Towns	8.9	26.1	55.6	59.1	11.8	12.4	6.4	143
Treutlen	9.7	31.3	48.7	50.0	10.1	6.9	2.5	147
Troup	124.6	337.4	591.6	625.0	10.0	9.2	5.6	25
Turner	20.1	54.1	85.4	89.0	9.2	7.4	4.2	123
Twiggs	15.4	46.4	82.8	89.4	10.9	9.8	7.9	121
Union	14.0	41.7	86.9	96.2	12.0	12.7	10.7	116
Upson	66.3	168.6	259.8	274.1	8.7	7.2	5.5	50
Walker	150.6	373.2	557.4	596.3	8.4	6.9	7.0	26
Walton	65.4	201.8	362.1	387.3	11.0	9.8	7.0	40
Ware	91.9	237.8	382.9	398.6	9.0	7.7	4.1	37
Warren	18.8	36.0	53.6	54.7	6.5	6.2	2.2	144
Washington	39.8	124.7	193.4	202.8	10.1	7.2	4.9	66
Wayne	43.3	122.1	213.1	224.7	10.2	9.1	5.4	58
Webster	4.7	14.2	24.4	26.0	10.6	9.0	6.7	155
Wheeler	9.9	30.1	40.7	40.7	8.7	4.4	0.1	151
White	19.3	58.6	125.3	140.5	12.4	13.3	12.1	92
Whitfield	176.0	513.3	860.0	943.3	10.4	9.1	9.7	16
Wilcox	15.2	41.1	67.9	69.5	9.4	7.8	2.5	136
Wilkes	24.1	69.9	112.9	123.4	10.1	8.5	9.2	101
Wilkinson	22.8	64.8	108.5	113.6	9.9	8.3	4.7	104
Worth	33.9	101.6	171.4	180.3	10.3	8.5	5.2	79
Georgia	14,327.7	41,025.2	75,513.0	82,102.8	10.8	10.4	8.7	--

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Table CA5, "Personal Income by Major Source and Earnings by Major Industry," April 1988. Ranks and rates computed on unrounded data by Division of Research.

Table 3

Georgia's Ten Highest and Lowest Ranking Counties, Total Personal Income and Annual Average Rates of Growth, Selected Years

(Income in millions of dollars; rates in percent)

	Total Personal Income by County in:							
Rank	1969		1979		1985		1986	
HIGHEST								
1	Fulton	2,517.3	Fulton	5,833.7	Fulton	10,390.4	Fulton	11,241.4
2	DeKalb	1,722.1	DeKalb	4,640.7	DeKalb	8,434.2	DeKalb	9,331.6
3	Cobb	756.1	Cobb	2,825.3	Cobb	6,399.1	Cobb	7,168.8
4	Chatham	605.1	Chatham	1,632.4	Gwinnett	4,003.9	Gwinnett	4,509.6
5	Muscogee	580.3	Gwinnett	1,468.3	Chatham	2,753.5	Chatham	2,970.6
6	Richmond	512.3	Richmond	1,247.6	Richmond	2,239.0	Richmond	2,438.8
7	Bibb	474.1	Muscogee	1,230.7	Clayton	2,125.4	Clayton	2,269.0
8	Clayton	333.1	Clayton	1,202.5	Muscogee	2,012.6	Muscogee	2,161.4
9	Gwinnett	233.9	Bibb	1,117.8	Bibb	1,872.8	Bibb	1,988.9
10	Dougherty	225.5	Dougherty	676.8	Dougherty	1,101.1	Hall	1,167.1
LOWEST								
150	Towns	8.9	Towns	26.1	Wheeler	40.7	Long	45.3
151	Schley	7.8	Baker	22.6	Long	40.4	Wheeler	40.7
152	Long	7.0	Long	22.1	Baker	36.6	Schley	38.5
153	Baker	6.9	Schley	21.4	Schley	35.3	Baker	37.4
154	Clay	5.9	Glascock	17.8	Glascock	24.9	Glascock	26.5
155	Glascock	5.6	Clay	14.9	Webster	24.4	Webster	26.0
156	Taliaferro	4.9	Webster	14.2	Clay	24.3	Clay	24.9
157	Webster	4.7	Taliaferro	13.1	Taliaferro	22.7	Taliaferro	24.3
158	Echols	3.8	Quitman	11.3	Quitman	19.5	Quitman	21.0
159	Quitman	3.5	Echols	11.2	Echols	18.5	Echols	18.1
GEORGIA		14,327.7		41,025.2		75,513.0		82,102.8

	Annual Average % Change in Total Personal Income by County:					
Rank	1969-86		1979-96		1985-86	
HIGHEST						
1	Fayette	19.3	Gwinnett	17.4	Dawson	15.8
2	Gwinnett	19.0	Fayette	17.3	Banks	13.8
3	Rockdale	16.0	Cherokee	15.5	Evans	12.8
4	Columbia	15.0	Dawson	15.3	Liberty	12.6
5	Forsyth	15.0	Columbia	15.0	Gwinnett	12.6
6	Cherokee	15.0	Forsyth	14.5	Appling	12.6
7	Liberty	14.9	Cobb	14.2	Long	12.2
8	Douglas	14.6	Camden	13.5	Franklin	12.2
9	Oconee	14.5	White	13.3	White	12.1
10	Lee	14.2	Rockdale	13.2	Cobb	12.0
LOWEST						
150	Walker	8.4	Treutlen	6.9	Baker	2.4
151	Chattooga	8.4	Dodge	6.9	Screven	2.4
152	Pulaski	8.3	Taylor	6.8	Pierce	2.3
153	Telfair	8.2	Miller	6.6	Warren	2.2
154	Terrell	8.1	Chattooga	6.4	Lanier	0.9
155	Lanier	8.1	Lanier	6.3	Calhoun	0.9
156	Muscogee	8.0	Warren	6.2	Irwin	0.7
157	Stewart	7.3	Glascock	5.9	Wheeler	0.1
158	Warren	6.5	Dade	5.6	Dooly	-1.6
159	Chattahoochee	5.8	Wheeler	4.4	Echols	-2.1
GEORGIA		10.8		10.4		8.7

Source: See Table 2. Rankings computed by Division of Research.

considerably. Cobb's PCPI stood at 125 percent of the U.S. figure; DeKalb, at 120 percent; Fayette, 121 percent; Fulton, 123 percent; Gwinnett, 111 percent; and Rockdale, at an even 100 percent. These high values ranked four of the counties among the top twenty in the twelve-state southeastern region: Cobb stood tenth, Fulton 14th, Fayette 17th, and DeKalb 18th. The counties with the lowest absolute PCPIs were mostly rural and relatively isolated, with small populations. Only one, Chattahoochee in 1979, was a metropolitan county.

In annual average rates of growth, however, nonmetropolitan counties dominated the rankings. Only one metropolitan county appeared among the top ten for growth over 1969-86 (Oconee), 1979-86 (Chattahoochee), and 1985-86 (Oconee). Such outcomes illustrate the peculiarities of per capita personal income. Since PCPI is the product of total personal income divided by population, increases occur if total personal income increases *faster* than population *rises*, if total personal income increases while population remains stable, or if income remains stable or increases and population *falls*.

Several combinations appear to be operating in the nonmetropolitan counties that led in PCPI annual average rates of growth (Table 9). All had substantial growth in total personal income, although not necessarily at the highest rates and often from quite small absolute bases, combined with much less rapid growth, or even decreases, in population. In the two metropolitan counties that made the top ten,

Table 4

Quartile Distribution of Georgia Counties, by Annual Average Rates of Growth, 1969-1986, in TPI and PCPI

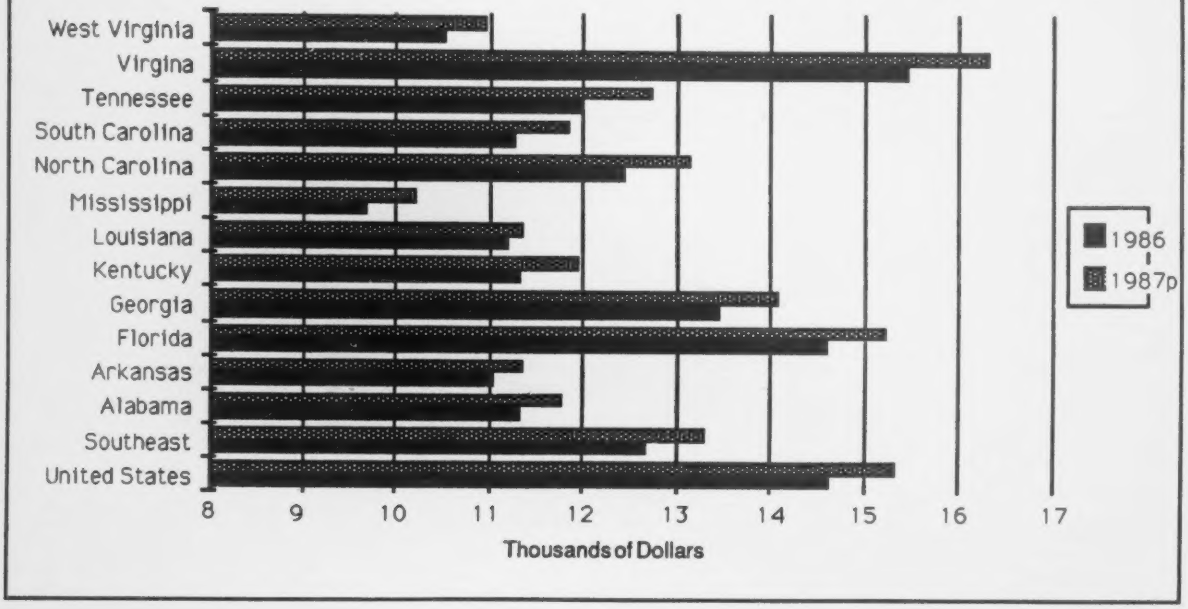
	Range of Growth (%) in:	
Quartile	TPI	PCPI
1	19.33 - 11.42	11.58 - 9.48
2	11.38 - 10.25	9.47 - 8.99
3	10.24 - 9.41	8.98 - 8.53
4	9.40 - 5.82	8.47 - 6.77
State Rate	10.82	8.92
Counties above state rate	60	86
Counties below state rate	99	73

Note: Quartile groupings determined by ranking all counties by unrounded average annual growth rates. Ranges denote counties in groups of 40.

Source: Based on rates from Tables 2 and 6, computed by Division of Research.

Figure 2

Per Capita Personal Income, U.S. Southeast, and Southeastern States, 1986 and 1987p



relative changes were mixed. Oconee County had much higher than average population growth over 1969-86, but an annual average TPI growth rate over three times higher than that for population. In 1985-86, the same county's population grew at only a third of the state rate, but its TPI growth rate was the twelfth highest in Georgia. Chattahochee, tenth ranked for 1979-86, combined the 68th highest rate of growth in TPI with 149th place in population change.

The counties that ranked lowest in PCPI rate of growth also showed a variety of changes in total personal income and population. Pierce County, which ranked last in annual average PCPI growth for 1969-1986, had a 9 percent annual average rate of growth in TPI for the period (ranking it 139th in the state), but population grew at a relatively high annual average rate of 2.2 percent (ranked 40th and above the state average). Wheeler County, last for 1979-86, stood 159th in TPI rate of growth and neither gained nor lost population. The last-ranked county for 1985-86 change, Echols, lost PCPI value over 1985-86, and had a loss in TPI combined with no change in population. The overall effects of such combinations of change were, for the 1969-96 period, roughly in balance: 86 of Georgia's counties exceeded the state's average rate of growth in PCPI, and 73 fell below it.

Because per capita personal income may respond so sharply to sudden fluctuations in population or total personal income, the BEA long has warned against its uncritical use as a measure of economic change. As a population-adjusted figure prepared on a consistent basis for the nation, regions, states, MSAs, and counties, however, it remains a useful comparative measure. Another such measure, the per capita money income estimates prepared by the U.S. Bureau of the Census, employs a more limited definition and, with household income, will be discussed in the second part of this article.

Table 5

Per Capita Personal Income and Annual Average Rates of Growth,
Selected Years, U.S., Southeast, and Southeastern States
(Income in current dollars; rates in percent)

							Annual Average % Change from:		% Change from:	
Area	1969	1979	1985	1986	1987^p	1987 Rank in U.S.	1969-1986	1979-1986	1985-1986	1986-1987^p
United States	3,808	9,033	13,908	14,636	15,340	—	8.2	7.1	5.2	4.8
Southeast	3,047	7,676	12,056	12,695	13,307	—	8.8	7.5	5.3	4.8
Alabama	2,725	7,064	10,752	11,323	11,780	44	8.7	7.0	5.3	4.0
Arkansas	2,600	6,946	10,532	11,050	11,343	47	8.9	6.9	4.9	2.7
Florida	3,601	8,718	13,888	14,607	15,241	19	8.6	7.7	5.2	4.3
Georgia	3,148	7,610	12,642	13,459	14,098	27	8.9	8.5	6.5	4.7
Kentucky	2,926	7,386	10,821	11,342	11,950	41	8.3	6.3	4.8	5.4
Lousiana	2,874	7,668	11,270	11,197	11,362	46	8.3	5.6	-0.6	1.5
Mississippi	2,368	6,440	9,277	9,699	10,204	50	8.6	6.0	4.5	5.2
North Carolina	3,005	7,297	11,676	12,438	13,155	34	8.7	7.9	6.5	5.8
South Carolina	2,780	6,889	10,738	11,268	11,858	42	8.6	7.3	4.9	5.2
Tennessee	2,935	7,392	11,302	12,002	12,738	37	8.6	7.2	6.2	6.1
Virgina	3,521	8,713	14,532	15,461	16,322	10	9.1	8.5	6.4	5.6
West Virginia	2,764	7,222	10,063	10,531	10,959	49	8.2	5.5	4.7	4.1

^{p} Preliminary.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Personal Income, for States and Regions, Table SA2, April 1988; USDC, BEA News, April 20, 1988, Table 1. Rates computed by Division of Research.

Table 6

Per Capita Personal Income, by MSA and County, Selected Years, With Annual Average Rates of Growth (In current dollars, residence adjusted; growth rates in percent)

					Annual Average % Change from:		
	1969	1979	1985	1986	1969-86	1979-86	1985-86
MSAs							
Albany, GA	2,558	6,774	10,636	11,196	9.1	7.4	5.3
Athens, GA	2,633	6,773	11,223	12,234	9.5	8.8	9.0
Atlanta, GA	3,858	9,165	15,478	16,408	8.9	8.7	6.0
Augusta, GA	3,179	7,109	11,790	12,399	8.3	8.3	5.2
Chattanooga, TN-GA	3,235	7,728	11,682	12,533	8.3	7.2	7.3
Columbus, GA-AL	3,255	6,690	10,574	11,134	7.5	7.5	5.3
Macon, GA	3,231	7,292	11,716	12,438	8.3	7.9	6.2
Savannah, GA	3,204	7,979	12,511	13,353	8.8	7.6	6.7
Metropolitan Counties	3,558	8,407	14,056	14,945	8.8	8.6	6.3
Nonmetropolitan Counties	2,508	6,301	10,136	10,765	8.9	8.0	6.2
COUNTIES							
Appling	2,045	5,671	9,759	10,991	10.4	9.9	12.6
Atkinson	1,955	5,098	9,182	10,083	10.1	10.2	9.8
Bacon	2,335	5,351	8,836	9,627	8.7	8.8	9.0
Baker	1,788	5,924	9,855	10,213	10.8	8.1	3.6
Baldwin	2,049	6,497	10,407	11,293	10.6	8.2	8.5
Banks	2,130	5,709	9,441	10,512	9.8	9.1	11.3
Barrow	2,948	6,752	11,313	12,002	8.6	8.6	6.1
Bartow	2,931	6,777	10,728	10,718	7.9	6.8	-0.1
Ben Hill	2,420	6,016	9,311	9,822	8.6	7.3	5.5
Berrien	2,685	5,932	9,212	9,857	8.0	7.5	7.0
Bibb	3,311	7,397	11,989	12,713	8.2	8.0	6.0
Bleckley	2,613	6,256	10,066	10,561	8.6	7.8	4.9
Brantley	2,531	5,861	8,327	8,618	7.5	5.7	3.5
Brooks	2,203	4,642	7,785	8,069	7.9	8.2	3.6
Bryan	2,292	6,245	9,925	9,943	9.0	6.9	0.2
Bulloch	1,987	5,776	9,478	10,083	10.0	8.3	6.4
Burke	2,181	6,455	9,681	10,151	9.5	6.7	4.9
Butts	2,511	6,351	10,301	10,620	8.9	7.6	3.1
Calhoun	1,877	4,990	9,655	9,866	10.3	10.2	2.2
Camden	2,527	7,129	10,871	11,089	9.1	6.5	2.0
Candler	2,341	5,798	8,940	9,813	8.8	7.8	9.8
Carroll	2,667	6,718	10,867	11,513	9.0	8.0	5.9
Catoosa	2,940	6,622	9,561	10,190	7.6	6.4	6.6
Charlton	2,018	5,840	10,216	10,886	10.4	9.3	6.6
Chatham	3,245	8,094	12,767	13,646	8.8	7.7	6.9
Chattahoochee	2,763	4,415	8,202	8,676	7.0	10.1	5.8
Chattooga	2,634	6,234	9,280	9,941	8.1	6.9	7.1
Cherokee	3,104	7,415	13,207	13,574	9.1	9.0	2.8
Clarke	2,748	6,964	11,640	12,646	9.4	8.9	8.6
Clay	1,586	4,134	7,334	7,766	9.8	9.4	5.9

(continued)

Table 6 (Continued)

					Annual Average % Change from:		
	1969	1979	1985	1986	1969-86	1979-86	1985-86
Clayton	3,488	8,099	12,708	13,309	8.2	7.4	4.7
Clinch	2,082	5,355	8,656	8,784	8.8	7.3	1.5
Cobb	3,979	9,835	17,151	18,267	9.4	9.2	6.5
Coffee	2,452	5,609	8,983	9,644	8.4	8.0	7.4
Colquitt	2,582	6,349	10,353	10,825	8.8	7.9	4.6
Columbia	3,302	7,480	13,151	13,627	8.7	8.9	3.6
Cook	2,455	5,532	8,524	9,167	8.1	7.5	7.5
Coweta	2,998	7,616	12,027	12,461	8.7	7.3	3.6
Crawford	2,325	6,368	10,499	11,220	9.7	8.4	6.9
Crisp	2,273	5,820	8,876	9,475	8.8	7.2	6.7
Dade	2,315	5,788	8,606	8,824	8.2	6.2	2.5
Dawson	2,947	6,603	11,634	12,640	8.9	9.7	8.6
Decatur	2,044	5,983	9,137	9,990	9.8	7.6	9.3
DeKalb	4,208	9,663	16,249	17,629	8.8	9.0	8.5
Dodge	2,226	6,027	9,222	9,553	8.9	6.8	3.6
Dooly	2,238	5,392	9,886	9,881	9.1	9.0	-0.1
Dougherty	2,568	6,807	10,640	11,217	9.1	7.4	5.4
Douglas	3,149	7,308	12,165	12,730	8.6	8.3	4.6
Early	2,036	5,455	9,326	9,991	9.8	9.0	7.1
Echols	2,136	4,751	7,717	7,545	7.7	6.8	-2.2
Effingham	2,624	6,684	9,906	10,449	8.5	6.6	5.5
Elbert	2,570	6,695	10,396	10,905	8.9	7.2	4.9
Emanuel	2,015	5,615	8,465	8,922	9.1	6.8	5.4
Evans	2,329	6,060	10,664	12,094	10.2	10.4	13.4
Fannin	2,134	5,331	8,869	9,266	9.0	8.2	4.5
Fayette	3,853	10,349	17,487	17,771	9.4	8.0	1.6
Floyd	3,074	7,396	11,722	12,531	8.6	7.8	6.9
Forsyth	3,149	7,970	14,012	14,574	9.4	9.0	4.0
Franklin	2,412	6,083	10,581	11,717	9.7	9.8	10.7
Fulton	4,103	9,884	16,837	18,052	9.1	9.0	7.2
Gilmer	2,492	6,266	10,580	11,417	9.4	8.9	7.9
Glascock	2,420	8,124	10,332	11,163	9.4	4.6	8.0
Glynn	3,038	8,066	12,624	13,376	9.1	7.5	6.0
Gordon	2,922	6,299	10,219	11,415	8.3	8.9	11.7
Grady	2,302	5,604	8,946	9,415	8.6	7.7	5.2
Greene	2,035	5,161	9,227	10,229	10.0	10.3	10.9
Gwinnett	3,385	9,391	15,840	16,292	9.7	8.2	2.9
Habersham	2,436	6,072	10,356	11,346	9.5	9.3	9.6
Hall	3,101	7,516	12,641	13,394	9.0	8.6	6.0
Hancock	1,696	4,754	7,745	8,377	9.9	8.4	8.2

(continued)

Table 6 (Continued)

	1969	1979	1985	1986	Annual Average % Change from:		
					1969-86	1979-86	1985-86
Haralson	3,119	6,970	10,749	11,227	7.8	7.0	4.4
Harris	2,783	6,822	10,981	11,515	8.7	7.8	4.9
Hart	2,506	6,388	10,629	11,360	9.3	8.6	6.9
Heard	2,114	6,008	9,724	10,060	9.6	7.6	3.5
Henry	3,017	8,240	13,490	13,764	9.3	7.6	2.0
Houston	3,192	7,363	11,680	12,282	8.2	7.6	5.2
Irwin	2,432	5,666	10,081	10,196	8.8	8.8	1.1
Jackson	2,499	6,030	10,788	11,729	9.5	10.0	8.7
Jasper	2,705	6,493	11,642	12,799	9.6	10.2	9.9
Jeff Davis	2,874	6,818	10,450	10,857	8.1	6.9	3.9
Jefferson	2,133	5,972	8,938	9,399	9.1	6.7	5.2
Jenkins	2,044	5,501	8,992	9,576	9.5	8.2	6.5
Johnson	2,015	5,781	8,780	9,233	9.4	6.9	5.2
Jones	2,763	6,515	10,568	11,645	8.8	8.7	10.2
Lamar	2,444	6,495	10,727	11,579	9.6	8.6	7.9
Lanier	2,677	5,795	8,490	8,673	7.2	5.9	2.2
Laurens	2,384	6,749	10,146	10,670	9.2	6.8	5.2
Lee	2,440	6,486	10,612	11,052	9.3	7.9	4.1
Liberty	2,420	5,696	9,121	10,234	8.9	8.7	12.2
Lincoln	2,598	5,666	9,300	9,567	8.0	7.8	2.9
Long	1,860	5,028	7,079	8,083	9.0	7.0	14.2
Lowndes	2,814	6,657	10,268	10,537	8.1	6.8	2.6
Lumpkin	2,572	6,191	10,820	11,753	9.3	9.6	8.6
McDuffie	2,921	6,337	9,511	9,729	7.3	6.3	2.3
McIntosh	1,657	5,301	9,280	9,654	10.9	8.9	4.0
Macon	1,978	5,168	8,560	9,254	9.5	8.7	8.1
Madison	2,360	6,570	9,550	10,453	9.1	6.9	9.5
Marion	2,189	4,999	8,842	9,878	9.3	10.2	11.7
Meriwether	2,257	5,738	9,277	9,760	9.0	7.9	5.2
Miller	2,153	6,039	8,945	9,313	9.0	6.4	4.1
Mitchell	2,374	5,635	8,087	8,778	8.0	6.5	8.5
Monroe	2,746	6,605	10,989	11,749	8.9	8.6	6.9
Montgomery	2,181	5,949	9,270	9,744	9.2	7.3	5.1
Morgan	2,532	6,879	11,232	12,055	9.6	8.3	7.3
Murray	2,713	6,296	9,598	10,250	8.1	7.2	6.8
Muscogee	3,563	7,244	11,239	11,944	7.4	7.4	6.3
Newton	2,829	6,762	11,330	11,882	8.8	8.4	4.9
Oconee	2,514	7,443	12,034	13,344	10.3	8.7	10.9
Oglethorpe	2,043	5,749	9,267	10,117	9.9	8.4	9.2
Paulding	2,661	6,433	11,157	11,569	9.0	8.7	3.7
Peach	3,017	6,819	10,787	11,711	8.3	8.0	8.6
Pickens	2,610	6,631	10,941	11,702	9.2	8.5	7.0
Pierce	2,764	5,372	8,381	8,417	6.8	6.6	0.4
Pike	2,261	6,957	10,498	11,379	10.0	7.3	8.4
Polk	2,574	6,620	9,967	10,350	8.5	6.6	3.8

(continued)

Table 6 (Continued)

	1969	1979	1985	1986	Annual Average % Change from: 1969-86	1979-86	1985-86
Pulaski	2,934	6,300	9,937	10,459	7.8	7.5	5.3
Putnam	2,525	6,292	10,251	10,595	8.8	7.7	3.4
Quitman	1,579	4,766	8,698	9,364	11.0	10.1	7.7
Rabun	2,159	5,635	9,363	10,061	9.5	8.6	7.5
Randolph	2,176	4,790	8,018	8,371	8.2	8.3	4.4
Richmond	3,165	6,953	11,672	12,520	8.4	8.8	7.3
Rockdale	3,200	8,219	14,274	14,677	9.4	8.6	2.8
Schley	2,559	6,064	10,518	11,134	9.0	9.1	5.9
Screven	1,944	5,904	8,999	8,900	9.4	6.0	-1.1
Seminole	2,430	5,833	9,647	10,175	8.8	8.3	5.5
Spalding	2,935	7,058	10,948	11,236	8.2	6.9	2.6
Stephens	2,601	6,649	9,873	10,477	8.5	6.7	6.1
Stewart	2,272	5,072	7,969	8,614	8.2	7.9	8.1
Sumter	2,609	6,187	10,187	10,869	8.8	8.4	6.7
Talbot	1,870	4,910	8,733	8,997	9.7	9.0	3.0
Taliaferro	1,928	6,251	11,117	11,862	11.3	9.6	6.7
Tattnall	2,004	5,101	9,058	10,161	10.0	10.3	12.2
Taylor	2,224	6,010	9,160	9,533	8.9	6.8	4.1
Telfair	2,343	5,233	8,636	9,276	8.4	8.5	7.4
Terrell	2,201	4,835	7,583	8,137	8.0	7.7	7.3
Thomas	2,640	6,650	10,805	11,642	9.1	8.3	7.7
Tift	2,548	6,311	10,804	11,303	9.2	8.7	4.6
Toombs	2,292	5,978	10,021	10,769	9.5	8.8	7.5
Towns	1,926	4,774	9,079	9,474	9.8	10.3	4.4
Treutlen	1,700	5,141	8,082	8,372	9.8	7.2	3.6
Troup	2,790	6,852	10,984	11,531	8.7	7.7	5.0
Turner	2,296	5,752	9,031	9,326	8.6	7.1	3.3
Twiggs	1,869	4,799	8,126	8,877	9.6	9.2	9.2
Union	2,061	4,674	8,244	8,892	9.0	9.6	7.9
Upson	2,812	6,516	9,869	10,281	7.9	6.7	4.2
Walker	2,915	6,604	9,916	10,576	7.9	7.0	6.7
Walton	2,797	6,479	11,025	11,460	8.6	8.5	3.9
Ware	2,710	6,331	10,306	10,766	8.5	7.9	4.5
Warren	2,794	5,496	8,587	8,819	7.0	7.0	2.7
Washington	2,259	6,612	9,976	10,499	9.5	6.8	5.2
Wayne	2,427	5,982	9,715	10,206	8.8	7.9	5.1
Webster	1,862	6,139	11,333	11,986	11.6	10.0	5.8
Wheeler	2,134	5,884	7,906	7,911	8.0	4.3	0.1
White	2,527	5,954	11,019	12,163	9.7	10.7	10.4
Whitfield	3,317	7,809	12,547	13,621	8.7	8.3	8.6
Wilcox	2,191	5,411	9,019	9,204	8.8	7.9	2.1
Wilkes	2,360	6,546	10,087	11,156	9.6	7.9	10.6
Wilkinson	2,414	6,243	10,078	10,537	9.1	7.8	4.6
Worth	2,293	5,698	9,304	9,660	8.8	7.8	3.8
Georgia	3,148	7,610	12,639	13,451	8.9	8.5	6.4

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Table CA5, "Personal Income by Major Source and Earnings by Major Industry," April 1988. Ranks and rates computed on unrounded data by Division of Research.

Table 7

1986 Rankings and Percent of National Average, 1969 and 1986, for Per Capita Personal Income, Georgia's MSAs and Counties

	PCPI Rank in 1986	PCPI as % of U.S. Average:			PCPI Rank in 1986	PCPI as % of U.S. Average:	
		1969	1986			1969	1986
MSA							
Albany, GA	284	67	76				
Athens, GA	239	69	84				
Atlanta, GA	44	101	112				
Augusta, GA-SC	223	83	85				
Chattanooga, TN-GA	215	85	86				
Columbus, GA-AL	288	85	76				
Macon-Warner Robins, GA	218	85	85				
Savannah, GA	172	84	91				
All Metropolitan Counties	--	93	102				
Non-Metropolitan Counties	–	66	74				
COUNTY							
Appling	64	54	75	Clayton	16	92	91
Atkinson	99	51	69	Clinch	144	55	60
Bacon	119	61	66	Cobb	1	104	125
Baker	91	47	70	Coffee	118	64	66
Baldwin	54	54	77	Colquitt	69	68	74
Banks	80	56	72	Columbia	10	87	93
Barrow	29	77	82	Cook	136	64	63
Bartow	72	77	73	Coweta	24	79	85
Ben Hill	111	64	67	Crawford	57	61	77
Berrien	110	71	67	Crisp	124	60	65
Bibb	19	87	87	Dade	142	61	60
Bleckley	77	69	72	Dawson	21	77	86
Brantley	148	66	59	Decatur	104	54	68
Brooks	156	58	55	DeKalb	4	111	120
Bryan	105	60	68	Dodge	122	58	65
Bulloch	99	52	69	Dooly	107	59	67
Burke	97	57	69	Dougherty	58	67	77
Butts	74	66	73	Douglas	18	83	87
Calhoun	109	49	67	Early	103	53	68
Camden	62	66	76	Echols	159	56	52
Candler	112	61	67	Effingham	85	69	71
Carroll	46	70	79	Elbert	65	67	74
Catoosa	94	77	70	Emanuel	138	53	61
Charlton	66	53	74	Evans	27	61	83
Chatham	9	85	93	Fannin	132	56	63
Chattahoochee	146	73	59	Fayette	3	101	121
Chattooga	106	69	68	Floyd	22	81	86
Cherokee	12	82	93	Forsyth	7	83	100
Clarke	20	72	86	Franklin	37	63	80
Clay	158	42	53	Fulton	2	108	123

(continued)

Table 7 (Continued)

	PCPI	PCPI as % of U.S. Average:			PCPI	PCPI as % of U.S. Average:	
	Rank in 1986	1969	1986		Rank in 1986	1969	1986
Gilmer	48	65	78	Mitchell	145	62	60
Glascock	59	64	76	Monroe	35	72	80
Glynn	14	80	91	Montgomery	114	57	67
Gordon	49	77	78	Morgan	28	66	82
Grady	126	60	64	Murray	88	71	70
Greene	90	53	70	Muscogee	31	94	82
Gwinnett	5	89	111	Newton	32	74	81
Habersham	52	64	78	Oconee	15	66	91
Hall	13	81	91	Oglethorpe	98	54	69
Hancock	151	45	57	Paulding	43	70	79
Haralson	56	82	77	Peach	38	79	80
Harris	45	73	79	Pickens	39	69	80
Hart	51	66	78	Pierce	150	73	57
Heard	102	56	69	Pike	50	59	78
Henry	8	79	94	Polk	86	68	71
Houston	25	84	84	Pulaski	83	77	71
Irwin	93	64	70	Putnam	75	66	72
Jackson	36	66	80	Quitman	128	41	64
Jasper	17	71	87	Rabun	101	57	69
Jeff Davis	68	75	74	Randolph	153	57	57
Jefferson	127	56	64	Richmond	23	83	86
Jenkins	120	54	65	Rockdale	6	84	100
Johnson	134	53	63	Schley	61	67	76
Jones	40	73	80	Screven	139	51	61
Lamar	42	64	79	Seminole	95	64	70
Lanier	147	70	59	Spalding	55	77	77
Laurens	73	63	73	Stephens	82	68	72
Lee	63	64	75	Stewart	149	60	59
Liberty	89	64	70	Sumter	67	69	74
Lincoln	121	68	65	Talbot	137	49	61
Long	155	49	55	Taliaferro	33	51	81
Lowndes	78	74	72	Tattnall	96	53	69
Lumpkin	34	68	80	Taylor	123	58	65
McDuffie	115	77	66	Telfair	131	62	63
McIntosh	117	44	66	Terrell	154	58	56
Macon	133	52	63	Thomas	41	69	80
Madison	84	62	71	Tift	53	67	77
Marion	108	57	67	Toombs	70	60	74
Meriwether	113	59	67	Towns	125	51	65
Miller	130	57	64	Treutlen	152	45	57

(continued)

Table 7 (Continued)

	PCPI	PCPI as % of U.S. Average:			PCPI	PCPI as % of U.S. Average:	
	Rank in 1986	1969	1986		Rank in 1986	1969	1986
Troup	44	73	79	Wayne	92	64	70
Turner	129	60	64	Webster	30	49	82
Twiggs	141	49	61	Wheeler	157	56	54
Union	140	54	61	White	26	66	83
Upson	87	74	70	Whitfield	11	87	93
Walker	76	77	72	Wilcox	135	58	63
Walton	47	73	78	Wilkes	60	52	76
Ware	71	71	74	Wilkinson	78	63	72
Warren	143	73	60	Worth	116	60	66
Washington	81	59	72				
				GEORGIA	28	83	92

Note: MSAs ranked by their standing among total MSAs, PMSAs, and NECMAs in U.S.; counties ranked within Georgia; Georgia ranked within all states.

Sourcee: Rankings from U.S. Department of Commerce, Survey of Current Business, Vol. 68, No. 4 (April, 1988), pp. 51-75; percents of national average from U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "Per Capita Personal Income, For Counties and Metropolitan Areas (Percent of National Average)", printout, April, 1988.

Table 8

Georgia's Ten Highest and Lowest Ranking Counties, Per Capita Income Values and Annual Average Rates of Change, Selected Years
(PCPI in dollars; rates of change in percent)

Rank	Per Capita Personal Income by County in:							
	1969		1979		1985		1986	
HIGHEST								
1	DeKalb	4,208	Fayette	10,349	Fayette	17,487	Cobb	18,267
2	Fulton	4,103	Fulton	9,884	Cobb	17,151	Fulton	18,052
3	Cobb	3,979	Cobb	9,835	Fulton	16,837	Fayette	17,771
4	Fayette	3,853	DeKalb	9,663	DeKalb	16,249	DeKalb	17,629
5	Muscogee	3,563	Gwinnett	9,391	Gwinnett	15,840	Gwinnett	16,292
6	Clayton	3,488	Henry	8,240	Rockdale	14,274	Rockdale	14,677
7	Gwinnett	3,385	Rockdale	8,219	Forsyth	14,012	Forsyth	14,574
8	Whitfield	3,317	Glascock	8,124	Henry	13,490	Henry	13,764
9	Bibb	3,311	Clayton	8,099	Cherokee	13,207	Chatham	13,646
10	Columbia	3,302	Chatham	8,094	Columbia	13,151	Columbia	13,627
LOWEST								
150	Talbot	1,870	Twiggs	4,799	Treutlen	8,082	Pierce	8,417
151	Twiggs	1,869	Randolph	4,790	Randolph	8,018	Hancock	8,377
152	Webster	1,862	Towns	4,774	Stewart	7,969	Treutlen	8,372
153	Long	1,860	Quitman	4,766	Wheeler	7,906	Randolph	8,371
154	Baker	1,788	Hancock	4,754	Brooks	7,785	Terrell	8,137
155	Treutlen	1,700	Echols	4,751	Hancock	7,745	Long	8,083
156	Hancock	1,696	Union	4,674	Echols	7,717	Brooks	8,069
157	McIntosh	1,657	Brooks	4,642	Terrell	7,583	Wheeler	7,911
158	Clay	1,586	Chattahoochee	4,415	Clay	7,334	Clay	7,766
159	Quitman	1,579	Clay	4,134	Long	7,079	Echols	7,545
GEORGIA		3,148		7,610		12,639		13,451

Rank	Annual Average % Change in Per Capita Personal Income by County:					
	1969-86		1979-96		1985-86	
HIGHEST						
1	Webster	11.6	White	10.7	Long	14.2
2	Taliaferro	11.3	Evans	10.4	Evans	13.4
3	Quitman	11.0	Tattnall	10.3	Appling	12.6
4	McIntosh	10.9	Towns	10.3	Liberty	12.2
5	Baker	10.8	Greene	10.3	Tattnall	12.2
6	Baldwin	10.6	Atkinson	10.2	Marion	11.7
7	Charlton	10.4	Calhoun	10.2	Gordon	11.7
8	Appling	10.4	Marion	10.2	Banks	11.3
9	Oconee	10.3	Jasper	10.2	Oconee	10.9
10	Calhoun	10.3	Chattahoochee	10.1	Greene	10.9
LOWEST						
150	Pulaski	7.8	Camden	6.5	Fayette	1.6
151	Echols	7.7	Miller	6.4	Clinch	1.5
152	Catoosa	7.6	Catoosa	6.4	Irwin	1.1
153	Brantley	7.5	McDuffie	6.3	Pierce	0.4
154	Muscogee	7.4	Dade	6.2	Bryan	0.2
155	McDuffie	7.3	Screven	6.0	Wheeler	0.1
156	Lanier	7.2	Lanier	5.9	Dooly	-0.1
157	Warren	7.0	Brantley	5.7	Bartow	-0.1
158	Chattahoochee	7.0	Glascock	4.6	Screven	-1.1
159	Pierce	6.8	Wheeler	4.3	Echols	-2.2
GEORGIA		8.9		8.5		6.4

Source: See Table 6. Rankings computed by Division of Research.

Table 9

Relative Total Personal Income and Population Growth Ranks and Rates for Georgia's 10 Highest PCPI - Growth Counties, Selected Periods

	PCPI Growth 1969-86		Matching Growth in: TPI 1969-86		Pop. 1969-86	
State Rank	County	% Increase*	State Rank	% Increase*	State Rank	% Increase*
1	Webster	11.6	66	10.6	154	-0.7
2	Taliaferro	11.3	96	10.0	157	-1.0
3	Quitman	11.0	54	11.1	146	0.0
4	McIntosh	10.9	31	11.6	105	0.7
5	Baker	10.8	72	10.5	152	-0.3
6	Baldwin	10.6	49	11.2	117	0.5
7	Charlton	10.4	18	12.4	45	1.9
8	Appling	10.4	20	12.2	61	1.6
9	Oconee	10.3	9	14.5	14	3.9
10	Calhoun	10.3	134	9.1	159	-1.1
	Georgia	8.9		10.8		1.7

	PCPI Growth 1979-86		Matching Growth in: TPI 1979-86		Pop. 1979-86	
State Rank	County	% Increase*	State Rank	% Increase*	State Rank	% Increase*
1	White	10.7	9	13.3	32	2.3
2	Evans	10.4	61	9.6	150	-0.8
3	Tattnall	10.3	46	9.9	140	-0.3
4	Towns	10.3	14	12.4	43	1.7
5	Greene	10.3	33	10.7	101	0.5
6	Atkinson	10.2	24	11.4	72	0.9
7	Calhoun	10.2	76	9.1	157	-1.0
8	Marion	10.2	35	10.6	97	0.5
9	Jasper	10.2	79	9.1	152	-0.9
10	Chattahoochee	10.1	68	9.4	149	-0.7
	Georgia	8.5		10.4		1.8

	PCPI Growth 1985-86		Matching Growth in: TPI 1985-86		Pop. 1985-86	
State Rank	County	% Increase*	State Rank	% Increase*	State Rank	% Increase*
1	Long	14.2	7	12.2	155	-1.8
2	Evans	13.4	3	12.8	152	-1.2
3	Appling	12.6	6	12.6	102	0.0
4	Liberty	12.2	4	12.6	92	0.5
5	Tattnall	12.2	18	11.3	137	-0.6
6	Marion	11.7	24	10.8	117	0.0
7	Gordon	11.7	13	11.6	131	-0.3
8	Banks	11.3	2	13.8	42	2.0
9	Oconee	10.9	12	11.7	86	0.7
10	Greene	10.9	35	10.1	111	0.0
	Georgia 85-86	6.4		8.7		2.2

*Annual average rates of growth for 1969-86 and 1979-86; percentage change for 1985-86.

Source: See Tables 3, 8; population ranks and rates based on U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, "Total Population, for Counties and Metropolitan Areas," printout, April, 1988.

GEORGIA BUSINESS STATISTICS

SERIES	APR 1988	MAR 1988	FEB 1987	APR 1987
Georgia Leading Indicators Index[1] (1969=100)	179.80	178.74	177.39	174.34
Georgia Coincident Indicators Index[2] (1969=100)	553.10	575.40	573.74	541.30
Nonagricultural Employment[2] (thousands)	2,787.9	2,784.4	2,777.3	2,744.1
Manufacturing Employment[2] (thousands)	569.6	572.3	572.7	567.4
Average Weekly Earnings, Manufacturing[2] (dollars)	357.25	356.04	355.68	340.54
Help Wanted Advertising, Atlanta Index[3] (1967=100)	287	265	261	251
Taxable Retail Sales[4] ($ millions)	3,208.9	3,819.7	3,474.1	3,257.5
Building Permits[5]				
Residential Housing Units, Private (thousands)	5.8	7.2	5.5	6.1
Value of Residential Housing ($ thousands)	350,989	409,637	324,001	340,516
Value of Nonresidential Construction ($ thousands)	261,275	261,198	195,497	199,847[p]
Industrial Buildings	9,829	28,564	29,938	29,305
Office, Bank and Other Professional Buildings	92,284	100,886	42,816	38,966
Stores and Other Mercantile Buildings	70,330	51,574	48,496	56,961
Other	88,832	80,174	74,247	74,615
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (1982-84 = 100)	115.4	114.8	114.1	111.5
South/Population more than 1,200,000[a]	116.0	115.5	115.2	112.4
South/Population 450,000 - 1,200,000[a]	116.3	115.8	115.1	112.1
South/Population 50,000 - 450,000[a]	114.5	114.0	113.4	110.7
South/Population Less than 50,000[a]	113.6	112.7	112.7	109.6
Atlanta (1982-84=100)[b]	117.5[c]	–	–	115.5[c]
Prices Received by Farmers, Georgia Index[7] (1977=100)	120	123	121	126
	1987:IV	1987:III	1987:II	1986:IV
Total Personal Income[8] ($ millions)	90,442	88,551	86,578	84,079

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision.

[2] Labor Information Systems, Georgia Department of Labor.

[3] Series published by The Conference Board, Inc.

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue.

[5] U.S. Department of Commerce, Bureau of the Census.

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office.

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service.

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

[a] Group size revised as of January 1, 1987; indexes revised to 1982-84=100 base as of January, 1988.

[b] Atlanta index is average of each 6 months of the calendar year; base revised to 1982-84=100 as of January 1, 1988.

[c] Data are for 2nd half, 1987, and first half, 1987, respectively.

[p] Preliminary; more than 25% imputed.

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GEORGIA BUSINESS AND ECONOMIC CONDITIONS

September-October 1988
Volume 48, number 5

Part 1

Employment and Growth In Georgia's Health Care Industry

Libby V. Morris

During 1986 and 1987, the Institute of Higher Education at the University of Georgia conducted an extensive workforce study to assess the supply of and the demand for professionals in over 25 health fields in Georgia. This study was partially funded by the Georgia Student Finance Authority to identify high demand health fields which may experience current and future workforce shortages. Systematic planning in the health fields is essential as shortages in health care often are difficult to alleviate due to the length of time it takes to educate and train professionals.

This first of a two-part article will describe the current status of Georgia's health care industry as gathered in a recent survey. In the next issue, the author will present national and state projections of future employment in this industry, and will summarize trends in health care and society that affect it.

In the past three decades, Georgia and the nation have experienced dramatic shifts in the cost and delivery of health care services. In the early 1960s, health care was provided primarily in hospitals and practitioners' offices. Costs were covered by private insurance or out-of-pocket by individuals in a fee-for-service arrangement; however, growing national concern about the shortage of practitioners and limited access for the disabled, elderly, and indigent prompted massive changes in the nation's health care environment. Federal monies poured into educational programs and into student financial aid over the past two decades, allowing schools of health to increase in number, quality and size. Student enrollments soared and an increasingly specialized workforce grew in response. For example, the number of registered nurses per 100,000 population grew from 293 in 1960 to over 629 in 1984. Likewise, the number of non-federal medical doctors increased from 126 per 100,000 in 1960 to 172 in 1980. Those workers loosely categorized as other "allied health workers" increased dramatically, growing from 40,000 in 1970 to over 225,000 in 1982.

The most sweeping change, however, occurred in health care financing, when in 1965 the Congress enacted legislation to extend medical coverage to the elderly and disabled. Called "the first revolution" in health care, Medicare started as a small program to aid a limited number of individuals. By 1985, however, 30 percent of health care expenditures were covered by the federal government and 10 percent by the states. Total health care expenditures increased from $27 billion in 1969 to more than $425 billion in 1985 (10.7 percent of the GNP). Hospital care in 1985 consumed almost 40 percent of the total expenditures. Medicaid, designed to aid the indigent population, and a primary source of nursing home funding, has also grown; however, Medicaid costs are shared by the federal and state governments and varies across states.

In the early years of federal involvement in health care, few individuals could foresee the advances and changes in medical care and society which were looming on the horizon, and no one could imagine the price tag that would accompany such progress. Facing spiraling health care costs, the nation's attention shifted from the workforce to health care financing, and in recent years little attention has focused on the active workforce supply or environmental factors which could affect the future supply and demand.

Scattered workforce data now are beginning to emerge which point to an industry which has expanded and is projected to grow faster than the workforce supply. The growing nursing shortage is a widely documented trend; however, other shortages are beginning to receive attention. In addition, current enrollments in many health fields indicate that these shortages will intensify and new shortages in personnel may develop as the health care industry continues to be one of the fastest growing in the economy.

THE STATUS OF GEORGIA'S HEALTH CARE INDUSTRY

Health professionals increasingly are employed in settings beyond the traditional hospital and office practice locations; moreover, based on recent employment data released by the Bureau of Labor Statistics, the nation's hospitals and nursing homes continue to employ the bulk of health care professionals (excluding self-employed medical doctors and dentists). To examine employment needs in Georgia's health care industry, all of the hospitals, nursing homes, home health care agencies, and freestanding ambulatory surgical centers in the state were surveyed by questionnaire during 1986. As can be seen in Table 1, a total of 638 facilities were surveyed and 321 replied, a 50 percent response rate. The hospital respondents presented 55 percent of the facilities and 67 percent of the beds statewide, a strong measure of employment conditions in Georgia's hospitals.

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HOSPITALS

In Georgia, the total number of hospitals rose from 142 in 1960 to 191 in 1980. In recent years, additions have resulted from the opening of specialty hospitals such as private psychiatric facilities. In 1986, 211 hospitals were surveyed for employment data and 116 replied. Collectively, the survey respondents represented 22,460 of the 34,128 hospitals beds statewide. Of the respondents, five were federal and 18 were psychiatric hospitals. Georgia has a total of 28 psychiatric hospitals; eight of which are state operated. The federal government operates eight hospitals in Georgia totaling over 3,000 beds. The V.A. Medical Center in Augusta is the largest of these facilities. In 1986, 16 psychiatric and 35 general hospitals in Georgia were classified as "for-profit."

For many years, inpatient hospital care was the standard of treatment across the country. Patient utilization rates were high and occupancy rates often ran above 80 percent. Cost containment in the form of Diagnostic Related Groups (DRGs)* reduced the number of beds and brought occupancy rates down quickly in the 1980s. According to the American Hospital Association, the national occupancy rate was just over 73 percent in 1970. In 1986, even with a reduced number of beds nationally, the rate fell to 63 percent. By comparison, Georgia's general hospitals averaged just over 55 percent occupancy in 1985, down from the 62.5 percent five years earlier. In the same period, the number of admissions fell from 968,788 to 922,935 and the average length of stay shortened from 6 days to 5.7 days.

In response to DRGs, many hospitals across the nation used natural attrition and massive terminations in some occupational categories to decrease hospital-based employment and to reduce payroll expenditures. Nationwide, some hospitals closed; others reduced the number of beds; and many "unprofitable" county-owned facilities were sold or turned over to management chains. Georgia's hospitals have been slower in turning to private ownership or management. Its hospitals also did not respond to DRGs with massive layoffs as occurred in other parts of the country. Much of Georgia's ability to maintain steady hospital

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* Diagnostic related groups are part of the federal government's cost reimbursement plan that pays hospitals at fixed rates for certain illnesses. It also sets the length of stay associated with each illness.

Table 1

Survey of Health Care Facilities in Georgia, 1986

Facility	Respondents		Non-respondents		Totals	
	No.	%	No.	%	No.	%
Hospitals	116	55	95	45	211	100
Nursing Homes	163	49	170	51	333	100
Home Health Care	27	37	46	63	73	100
Freestanding Ambulatory Surgical Centers	15	71	6	29	21	100
Total Surveyed	321	50	317	50	638	100

operations resulted from the growing population in the state and effective belt-tightening across the industry. Many Georgia hospitals with fewer than 100 beds, however, posted occupancy rates in the low 30s in 1986, while several of the larger hospitals (e.g., Emory University) posted occupancy rates in the high 80s.

Hospitals with low occupancy rates will continue to have financial and management difficulties in the next decade as competition for patients increases and the price tag of remaining technologically current escalates. Based upon overall utilization, the total number of hospital beds in Georgia and the nation are sufficient; however, regional variances in utilization and need may be noted. Areas growing rapidly in population may experience temporary shortages while hospitals in areas of declining population may average even lower occupancy rates.

Table 2 partially lists 1986 employment data provided by the hospital respondents. Registered nurses (i.e., professional nurses with associate or baccalaureate degrees or diplomas) in Georgia and the nation form the single largest category of health care professionals. At the time of the survey, over 1,000 FTE RN vacancies (a 9 percent vacancy rate) were reported. Since the survey, the Georgia Hospital Association reported that the RN vacancy rate in hospitals has increased to over 13 percent. A vacancy rate reflecting one budgeted position in 10 as vacant portends serious problems in the provision of quality care.

Licensed Practical Nurses (those with one year of training) occupied over 4,000 fulltime positions; yet the total FTE vacancies were less than 200, for a vacancy rate of about 4 percent. Vacancy rates falling below 5 percent generally are considered less serious and may be attributed to normal turnover and attrition. Despite the speculation that DRGs would virtually eliminate the employment of LPNs in hospitals, this is not the case in Georgia. Although the number of LPNs is not projected to grow in this setting, their employment will remain strong because there are not enough registered nurses to fill many of the openings.

There are many other highly specialized, yet much smaller, hospital-based occupations in addition to nursing. The hospital respondents reported severe recruitment difficulties in physical therapy and occupational therapy, yielding vacancy rates of 15.1 and 16.1 percent, respectively. Therapists are college graduates licensed for practice and a vacancy in this relatively small professional field may render a hospital unable to provide therapy services to inpatients. Small, rural hospitals may have longstanding vacancies in this field. Although the supply of pharmacists employed in drugstores seems adequate, hospitals in Georgia also have difficulty in recruiting and retaining pharmacists. The pharmacy vacancy rate averaged 9 percent. Additionally, respiratory therapists and medical laboratory technicians posted vacancies close to 10 percent.

In addition to recruitment problems, hospital administrators reported other employee retention problems. Several occupations yielded attrition rates (i.e., the percentage of the total personnel separating from employment over the previous twelve months) exceeding 20 percent. Those included registered nurses, LPNs, occupational and physical therapists, pharmacists, respiratory therapists, and radiation therapy technologists. Attrition is a costly problem in health care institutions as new employees often require extensive orientation to procedures and policies in each setting.

The length of time needed to fill a vacancy is another measure of employment supply and demand. On the average, three to four months were needed to recruit an occupational therapist, a physical therapist, and a pharmacist. Only licensed practical nursing posed no recruitment difficulties; vacancies averaged only 18 days. The recruitment problems varied by geographic location, occupation, and hospital. Average hiring times are of little comfort to

Table 2

Hospital Personnel
Selected Occupations
N=116

Occupational Category	Current Personnel			Budgeted Vacancies			Totals
	F/T	P/T	FTE	F/T	P/T	FTE	FTE
RN	9,492	2,138	10,489.8	984	407	1,101.1	11,590.0
LPN	4,182	639	4,491.8	179	43	196.1	4,687.9
Occupational Therapist	123	20	132.8	24	3	25.5	158.3
Occupational Therapy Assistant	27	2	27.9	2	0	2.0	29.9
Physical Therapist	231	49	253.8	42	5	45.0	298.8
Physical Therapist Assistant	106	20	114.9	9	0	9.0	123.9
Pharmacist	492	120	541.0	49	11	53.6	594.6
Respiratory Therapist	358	45	383.8	40	8	43.4	427.2
Respiratory Therapy Technician	339	61	367.9	17	6	18.9	386.8
Medical Laboratory Technician	433	100	471.1	42	19	50.9	522.0
Medical Technologist	1,010	155	1,076.8	65	26	72.7	1,147.5
Dietitian	189	30	202.5	13	2	13.6	216.1
Radiographer	661	112	710.1	23	5	24.5	734.6
Radiation Therapy Technologist	151	12	156.5	9	4	10.8	167.3
Diagnostic Medical Sonographer	65	5	67.5	3	2	3.7	71.2
Nuclear Medicine Technologist	102	6	104.4	5	4	6.8	111.2
Speech Pathologist	41	15	50.9	3	2	4.4	55.3
Surgical Technologist	261	22	270.5	21	10	23.2	293.7
Medical Record Administrator	111	8	114.1	8	1	8.5	122.6
Medical Record Technician	205	13	212.0	9	1	9.5	221.5

those hospitals needing up to 360 days to hire a physical therapist or 180 days to hire a medical technologist. Eighty-eight hospitals reported some recruitment problems; only 58 (50 percent) reported employee retention problems.

In response to general questions, the administrators did not foresee any significant increase or decrease in the number of beds in the next decade; however, several replied that other changes were underway. Heading the list of changes was the hospital's entry into outpatient services. The administrators' greatest concerns centered on three areas: the problem of providing quality care under DRGs and other changing reimbursement patterns, the problem of recruiting and retaining professional staff, and the need for diversification of hospital services to survive in a changing and complex health care marketplace.

NURSING HOMES

One hundred and sixty-three of 333 nursing homes replied to the nursing home survey, a 49 percent response rate. The respondents staffed a total of 18,124 beds, or slightly more than half of the nursing home beds in the state. In 1986, the occupancy rate for Georgia's general nursing homes averaged 95.8 percent, and 263 of 330 homes were classified as "for-profit" facilities. Georgia has one of the higher rates of nursing home beds to population over 65 of any state, and this fact is generally associated with higher costs to Medicaid, as only one in four nursing home patients were private pay in 1984. In contrast, Florida has higher numbers

Continued on page 13

Tenth in a
continuing series

Regional Economic Conditions

Hugh O. Nourse and John Drye

In this issue, we focus attention on two regions in the southeastern corner of Georgia. Three counties — Chatham, Bryan, and Effingham — compose the Savannah Region. This area is contiguous to the Coastal Region, which includes McIntosh, Liberty, Long, Glynn, and Camden counties.

The Savannah Region

Major towns and cities in the Savannah region include Springfield, Savannah, Rincon, Bloomingdale, Garden City, Thunderbolt, Richmond Hill, and Pembroke. Armstrong College, Savannah State College, and Hunter Army Airfield also are located in the area.

The largest industrial employers appear to be the food; lumber and wood products; paper; printing and publishing; chemical; stone, clay, and glass; non-electrical machinery; and transportation equipment industries (Table 1). Of these, only the food industry has experienced a low growth in statewide employment. All other industries showed substantial growth. Although the transportation industry has only six plants in the region, it provides for significant employment. For example, Gulfstream Aerospace and Great Dane Trailers each employ over 1,000 workers. The paper industry also employs approximately 4,500 workers at its Union Camp facility in Chatham County.

The civilian labor force reached a peak of 112,618 persons in 1986, only to decline by some 6,000 in 1987 (Table 2). The region's unemployment rate, while ranging from a high of 8.3 percent to a low of 5.9 percent, averaged

Table 1

Savannah Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
Industry	1-19	20-99	100-249	Over 250	Total
Food & kindred products	14	3	2	2	21
Tobacco manufactures	0	0	0	0	0
Textile mill products	1	0	0	0	1
Apparel & other textile products	5	3	0	0	8
Lumber & wood products	45	7	2	0	54
Furniture & fixtures	7	1	0	0	8
Paper & allied products	4	0	1	4	9
Printing & publishing	27	2	0	1	30
Chemicals & allied products	7	6	4	1	18
Petroleum & coal products	4	1	3	0	8
Rubber & misc. plastics products	6	0	0	0	6
Leather & leather products	0	0	0	0	0
Stone, clay, and glass products	9	10	1	0	20
Primary metal industries	1	2	1	0	4
Fabricated metal products	9	4	1	0	14
Machinery, except electrical	17	8	0	0	25
Electric & electronic equipment	0	0	0	0	0
Transportation equipment	2	1	1	2	6
Instruments and related products	4	0	0	0	4
Misc. manufacturing industries	6	1	0	0	7
Total number of plants	168	49	16	10	243

Source: U.S. Department of Commerce, *Census of Manufacturing,* 1982 slightly higher than for the state as a whole. The labor force for the Savannah Region grew at an annual rate of 1.1 percent between 1981 and 1987, as compared to a 2.7 percent growth rate for the state. The educational level of this region's labor force is relatively low, as only 49.7 percent have a high school education. Approximately 56.4 percent of Georgia's entire labor force are high school educated.

Table 2

Civilian Labor Force
Savannah

Year	Employed	Unemployed	Total
1980	91,963	6,333	98,296
1981	94,548	6,084	100,632
1982	96,081	7,796	103,877
1983	95,241	8,648	103,889
1984	97,187	7,222	104,409
1985	99,964	7,818	107,782
1986	105,314	7,304	112,618
1987	100,004	6,281	106,285

Source: Georgia Dept. of Labor, Labor Information System.

Residential construction exhibited an upward trend between 1980 and 1987 (Table 3). The total number of units constructed ranged from a low of 1,153 in 1980 to a high of 2,917 in 1986. This strong growth could be associated with the concentration of high growth industries in the area. Industrial construction was extremely volatile between 1980 and 1987 with values ranging from a low of $1.3 million in 1983 to a high of $55.6 million in 1985.

Table 3 also shows that office, bank, and professional buildings construction in the region increased during the same period. The value of office construction ranged from a low of $2.7 million in 1981 to a high of $27.7 million in 1986. Retail store construction kept pace as well, as values climbed from a low of $6.6 million in 1980 to a high of $27.1 million in 1986.

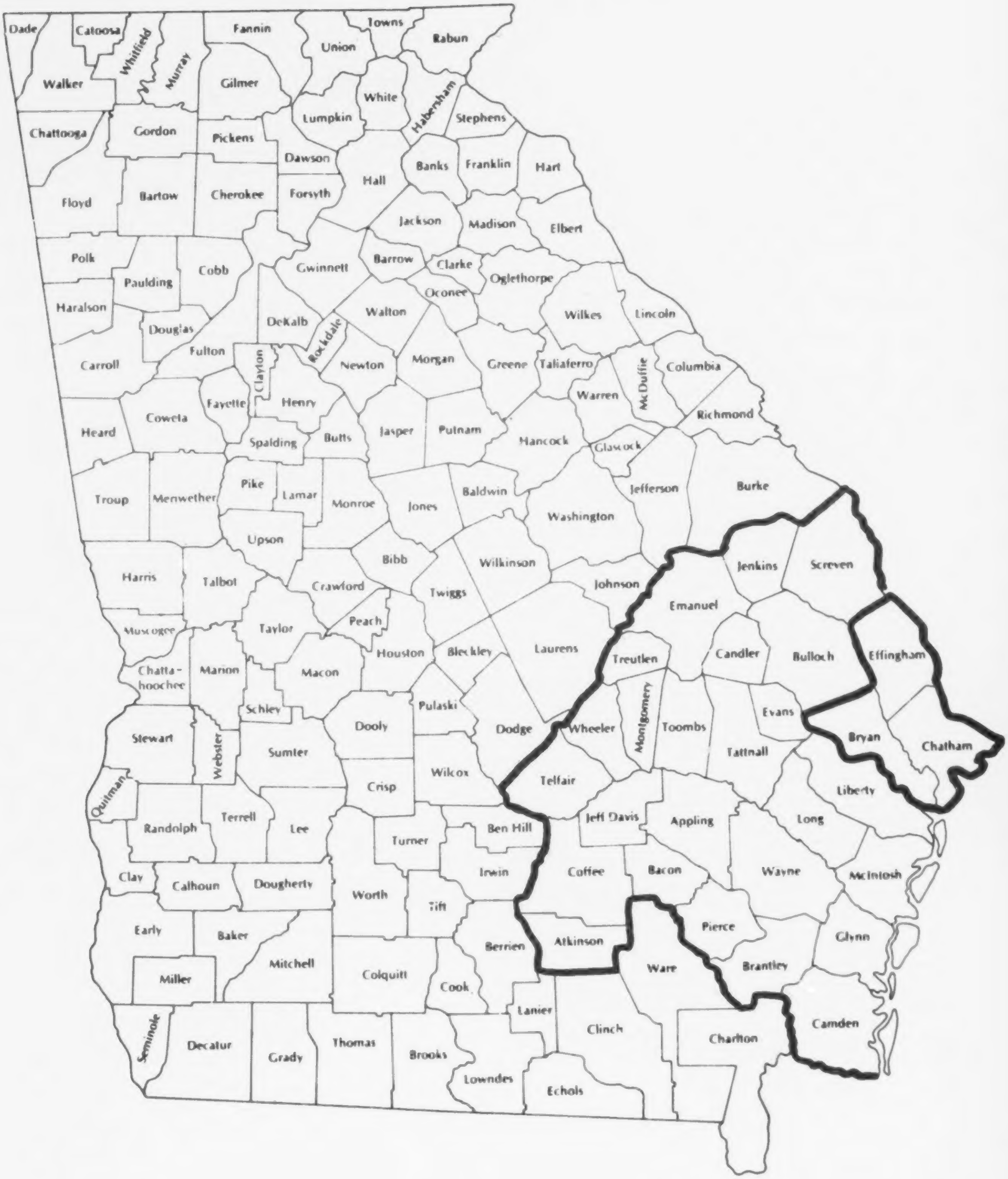
The strong growth rates in residential and nonresidential construction suggests that the Savannah Region grew tremendously between 1980 and 1987, even with a small downward adjustment in 1987. The Port of Savannah and the strong industrial base provide for continued growth in this coastal area. It is the most industrially balanced metropolitan area in Georgia outside of Atlanta.

Table 3

Building Permits
Savannah

	Residential		Value of Construction		
Year	Single Units	Total Units	Industrial	Office	Retail
1980	820	1,153	$ 1,666,517	$ 6,684,322	$ 6,588,190
1981	871	1,247	23,392,350	2,720,260	9,556,917
1982	786	1,839	6,770,916	6,826,376	6,652,738
1983	1,166	2,382	1,283,230	9,318,613	11,070,916
1984	1,172	1,867	5,038,576	9,562,852	19,394,311
1985	1,258	2,916	55,595,669	19,292,635	14,694,442
1986	1,779	2,917	14,549,231	27,723,551	27,071,421
1987	1,688	2,572	13,299,071	23,269,963	26,283,650
Annual Average	1,192	2,112	15,199,445	13,176,196	15,164,073

Source: U.S. Dept. of Commerce, Bureau of the Census.



Dade
Catoosa
Whitfield
Murray
Fannin
Towns
Union
Rabun
Walker
Gilmer
White
Habersham
Lumpkin
Stephens
Chattooga
Gordon
Pickens
Dawson
Banks
Franklin
Hart
Hall
Floyd
Bartow
Cherokee
Forsyth
Jackson
Madison
Elbert
Polk
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Paulding
Oconee
Haralson
Walton
Wilkes
Lincoln
DeKalb
Douglas
Rockdale
Fulton
Carroll
Clayton
Newton
Morgan
Greene
Taliaferro
McDuffie
Columbia
Henry
Fayette
Warren
Richmond
Coweta
Heard
Butts
Jasper
Putnam
Hancock
Spalding
Glascock
Pike
Baldwin
Jefferson
Burke
Troup
Meriwether
Lamar
Monroe
Jones
Washington
Upson
Jenkins
Screven
Bibb
Wilkinson
Harris
Talbot
Crawford
Johnson
Twiggs
Emanuel
Peach
Muscogee
Taylor
Houston
Bleckley
Laurens
Candler
Bulloch
Effingham
Treutlen
Chattahoochee
Marion
Macon
Schley
Pulaski
Montgomery
Evans
Dooly
Dodge
Wheeler
Toombs
Stewart
Bryan
Chatham
Sumter
Tattnall
Webster
Wilcox
Quitman
Crisp
Telfair
Liberty
Terrell
Randolph
Lee
Jeff Davis
Appling
Long
Turner
Ben Hill
Irwin
Clay
Calhoun
Dougherty
Coffee
Bacon
Wayne
McIntosh
Worth
Tift
Early
Pierce
Baker
Berrien
Atkinson
Glynn
Mitchell
Miller
Colquitt
Ware
Brantley
Cook
Lanier
Clinch
Camden
Seminole
Decatur
Grady
Thomas
Brooks
Charlton
Lowndes
Echols

Continued on next page

The Coastal Region

The Coastal Region borders the Savannah, East Central, and Southeast Regions. Major towns and cities include Hinesville, Ludowici, Darien, Brunswick, St. Marys, Kingsland, and Woodbine. Also located in the region are Fort Stewart Military Reservation, Kings Bay Naval Submarine Support Base, and Glynco Naval Station.

The area's largest industrial employers appear to be the food; lumber and wood products; paper; printing and publishing; stone, clay, and glass; and chemical industries (Table 4). Of the major employers, only the food industry experienced a relatively low growth in statewide employment. There are only five paper plants in this region, but four of these employ a large number of workers. For example, Brunswick Pulp and Paper, located in Glynn County, employs over 1,000 workers. The lumber and wood products industry accounts for 37 percent of the manufacturing plants in this region.

The Coastal Region's civilian labor force unemployment rate was fairly stable between 1980 and 1987 (Table 5). The region's unemployment rate, while ranging from a low of 5.3 percent in 1987 to a high of 7.5 percent in 1983, was somewhat below the state average. The labor force grew at an annual rate of 2.9 percent between 1981 and 1987 as compared to a 2.7 percent growth rate for the state as a whole. Both the region's low unemployment rate and rapidly growing labor force could be associated with the concentration of high growth industries here, as well as to the fact that it is on the I-95 corridor to Florida. Approximately 54.1 percent of this region's labor force are high school graduates, as compared to 56.4 percent for the state as a whole.

As Table 6 illustrates, residential construction was

Table 4

Coastal Region
Number of Manufacturing Plants by Employment, 1982

	Number of Employees				Plants
Industry	1-19	20-99	100-249	Over 250	Total
Food & kindred products	5	6	1	2	14
Tobacco manufactures	0	0	0	0	0
Textile mill products	0	0	0	0	0
Apparel & other textile products	3	2	2	0	7
Lumber & wood products	46	4	1	0	51
Furniture & fixtures	0	0	0	0	0
Paper & allied products	1	0	0	4	5
Printing & publishing	16	2	0	0	18
Chemicals & allied products	3	3	1	2	9
Petroleum & coal products	1	0	0	0	1
Rubber & misc. plastics products	0	0	2	0	2
Leather & leather products	0	0	0	0	0
Stone, clay, and glass products	5	2	2	0	9
Primary metal industries	0	0	0	0	0
Fabricated metal products	5	0	1	0	6
Machinery, except electrical	7	2	0	0	9
Electric & electronic equipment	1	0	0	0	1
Transportation equipment	2	1	0	0	3
Instruments and related products	0	0	0	0	0
Misc. manufacturing industries	2	0	0	0	2
Total number of plants	97	22	10	8	137

Source: U.S. Department of Commerce, *Census of Manufacturing*, 1982

Table 5

Civilian Labor Force
Coastal Region

Year	Employed	Unemployed	Total
1980	42,865	2,570	45,435
1981	43,965	2,579	46,544
1982	44,695	3,320	48,015
1983	44,948	3,660	48,608
1984	46,481	3,193	49,674
1985	49,501	3,667	53,168
1986	51,648	3,279	54,927
1987	52,320	2,916	55,236

Source: Georgia Dept. of Labor, Labor Information System.

relatively stable between 1980 and 1987. During this period, total unit residential construction ranged from a low of 1,154 units in 1981 to a high of 1,678 units in 1983. The low construction levels of 1981 probably were associated with the record high interest rates experienced in that year. On the other hand, industrial construction was extremely volatile. The value of industrial construction ranged from a high of $21 million in 1982 to a low of $2.5 million in 1984 . There was no consistent trend established between 1980 and 1987.

Office, bank, and professional buildings construction in the Coastal Region was almost static between 1980 and 1984. During this period, office construction varied between $1.8 million in 1982 and $1.2 million two years later. In 1985, however, the value of office construction increased substantially to $3.8 million, declined somewhat in 1986, and rose to $6.2 million in 1987.

Retail store construction also exhibited wide fluctuations between 1980 and 1987. Values ranged from a low of $1.9 million in 1981 to a high of $21.4 million in 1984. Although the value of retail store construction declined during 1985, it still amounted to $12.4 million. There was a substantial decrease in 1987. Given the current increases in interest rates, we anticipate declines in construction will continue.

Table 6

Building Permits
Coastal Region

	Residential		Value of Construction		
Year	Single Units	Total Units	Industrial	Office	Retail
1980	522	1,356	$ 1,112,000	$ 1,766,601	$ 4,374,236
1981	529	1,154	7,583,790	1,660,738	1,926,086
1982	691	1,417	21,131,000	1,836,434	2,203,800
1983	846	1,678	409,000	1,759,600	5,475,268
1984	774	1,396	249,000	1,193,130	21,411,119
1985	668	1,263	2,752,338	3,826,506	12,395,556
1986	1,026	1,623	725,000	2,470,221	13,104,609
1987	1,035	1,205	6,624,286	6,238,960	6,821,405
Annual Average	761	1,386	5,073,302	2,594,024	8,464,010

Source: U.S. Dept. of Commerce, Bureau of the Census.

Part 2

Aspects of Income in Georgia and the Southeast

Suzanne A. Lindsay

Part 1 of this article presented estimates of total and per capita personal income prepared by the U.S. Department of Commerce, Bureau of Economic Analysis, for the Southeast, southeastern states, and local areas in Georgia. Part 2 discusses the most recent data available for two other measures of inome prepared by the U.S. Department of Commerce, Bureau of the Census: per capita money income and median income for four-person families.

Every ten years, the U.S. Bureau of the Census asks a sample of all U.S. residents to detail their money income during the previous year. The 1979 per capita money income estimates for the nation, regions, states, and local areas were developed directly from responses given during the 1980 Census of Population and Housing, and were defined as the estimated average amount per person of total money income received during calendar 1979 for all persons residing in a given political jurisdiction. Every other year, as directed by the U.S. Congress, the Bureau of the Census updates these estimates; the most recent estimates, for 1985, were released early in 1988.

PER CAPITA MONEY INCOME

Like the Bureau of Economic Analysis' per capita personal income, the Census' per capita money income is a *residential* concept. Unlike PCPI, however, it is based entirely on received *money* income, further defined as the sum of wages or salaries; net nonfarm self-employment income; net farm self-employment income; interest, dividends, and net rental income; Social Security and Railroad Retirement income ; and all other regularly received income (including veteran's payments, pensions, unemployment compensation, and alimony). It does not include "lump-sum" payments, such as capital gains or inheritances, and is calculated *before* deductions for personal income taxes, Social Security taxes, bond purchases, union dues, Medicare, etc.

To determine the estimated calendar 1985 money income levels, the Census Bureau used the 1979 values as bases, updated by information contained in federal tax returns and by rates of change based on estimates of aggregate money income of various types, as provided by the Bureau of Economic Analysis. Population estimates necessary to derive per capita figures were based on estimated July 1,1984 values, adjusted by births, deaths, estimated net migration, the number of persons in special populations, and corrections to earlier estimates to give an estimated July 1, 1985 population value for each area.

Differences between PCPI and PCMI begin with definition and extend through methodology to extent of coverage. Per capita money income is originally survey-based, with data for larger geographic areas developed from the combined data for smaller areas (a bottom-up approach). The BEA's per capita personal income is based primarily on administrative records, with estimates for smaller areas developed by successively disaggregating those for the nation, region, and state (a top-down approach). In many cases, the differences in definition and methodology are substantial enough to result in Census estimates of PCMI substantially lower than those for PCPI. In extent, PCMI estimates are available for the nation, states, counties, and places; those for PCPI stop at the county level.

The differences involve both inclusion and exclusion. The Census Bureau *excludes* income in kind (goods and services provided in addion to, or in place of, cash payments) from its estimates; the BEA *includes* it. The Census includes individuals' contributions to Social Security funds; the BEA excludes all contributions to social insurance funds and explicitly removes them from area totals. The Census includes only the income of individuals; the BEA includes that received by legal "persons" such as nonprofit institutions. The Census does not include the value of Medicare payments; the BEA does. Some aspects of farm and military income also are treated differently by the two estimates.

Other differences have to do with whose income is counted (in 1979, for example, the Census excluded the income of persons who died or emigrated before April 1, 1980, because those persons were not part of the official population base; the BEA included it as income received in that calendar year), with the concept of "residence," and with the overall residence adjustment the BEA applies to convert earnings by place of work to earnings by place of residence. Such an adjustment is unnecessary for the Census, since respondents give direct place-of- residence data. Census data, however, being direct-response, may be affected by the memory or understanding of the person who provides the data; administrative records can be checked against previous years' data or other sources of information.

PCMI ESTIMATES FOR SOUTHEASTERN STATES

Data for 1979 and 1985 reveal that Virginia led the twelve-state Southeast with PCMIs of $7,475 in 1979 and $11,894 in 1985, above the U.S. average in each year (Table 1). Florida stood second, with Georgia rising from fourth (at $6,380) in 1979 to third (at $10,191) in 1985. Georgia's annual average rate of growth for the period, however, was 8.1 percent, ranking it first among the twelve states, slightly ahead of Florida and well ahead of the national rate of 6.8 percent. Mississippi ranked last in the region; the greatest change was exhibited by West Virginia, which slid from sixth to eleventh in the Southeast. Louisiana also lost ground relatively, moving from third to seventh place. Similar changes, reflecting the severe impact of recession in those two states, are observable in per capita personal income movements discussed in Part 1 of this article.

Georgia's counties showed substantial variation in per capita money income (Table 2), with values ranging from Fayette County's $8,782 to Quitman's $3,436 in 1979. By 1985, the highest PCMI was that of Cobb County ($14,274) and the lowest, Quitman's $5,431. As Table 3 exhibits, annual average rates of growth for the six-year period ranged from Columbia's 9.3 percent to Randolph's 5.1 percent. It should be noted that these rates are based on nominal (not adjusted for inflation) values. As in the case of per capita personal income, metropolitan counties dominated the lists of high *absolute* values, with non-metropoli-

Table 1

Per Capita Money Income, U.S. and Southeastern States, 1979 and 1985, With Rankings and Annual Average Rates of Growth, 1979-85 (PCMI in dollars; rates in percent)

Area	PCMI 1979	PCMI 1985	Annual Average % Change 1979-85	Rank in Southeast for: PCMI 1979	PCMI 1985
United States	7,295	10,797	6.8	—	—
Alabama	5,892	8,681	6.7	9	8
Arkansas	5,613	8,389	6.9	11	10
Florida	7,260	11,271	7.6	2	2
Georgia	6,380	10,191	8.1	4	3
Kentucky	5,973	8,614	6.3	8	9
Louisiana	6,425	8,836	5.5	3	7
Mississippi	5,182	7,483	6.3	12	12
North Carolina	6,132	9,517	7.6	7	4
South Carolina	5,884	8,890	7.1	10	6
Tennessee	6,212	9,290	6.9	5	5
Virginia	7,475	11,894	8.0	1	1
West Virginia	6,142	8,141	4.8	6	11

Note: No estimates for the twelve-state Southeast are available.

Source: Based on U.S. Department of Commerce, Bureau of the Census, South: 1986 Population and 1985 Per Capita Income Estimates for Counties and Incorporated Places (Current Population Reports, Local Population Estimates, Series P-26, No. 86-S-SC). Ranks and rates computed by Division of Research.

tan counties showing some of the highest annual average *rates* of growth.

FAMILY INCOME DEFINED

The Bureau of the Census measures money income not only by place, but also by living arrangements. The decennial censuses contain detailed data on the income of households, which essentially consist of a person or persons sharing common living quarters. Households are further defined as either "family", if at least one person resident is related to the householder by blood, marriage, or adoption; or "non-family", if the persons involved are not related. The "family" is defined as the householder and all persons related to him in one of the above ways. The Census Bureau notes that, given these definitions, there are many more households than families.

Between decennial censuses, the Bureau does not update household income figures at the state level. It does, however, periodically issue estimates of the median income for four-person families by state. Estimates for 1974-1985 were originally published in the *Federal Register*; those, plus estimates for 1986, are available currently as a press release.

As their title implies, the data are quite limited in scope. They apply only to families, not households, and to families of a particular size (four persons). Moreover, they are *medians*: that is, half of the four-person families in each area would have incomes above the given figure, and half would have incomes below it. In addition, the estimates are for money income alone, in accordance with the Census' standard definition. They are prepared by a complex method, revised in 1984, using information from the Current Population Survey for March of that year, from the 1980 Census of Population, and the BEA's per capita personal income estimates (which enter into the equations used to predict the totals, but are not themselves adopted).

CHANGE OVER TIME

Despite these limitations, the data offer another way to look at an aspect of state income over time. As Table 4 illustrates, except for Virginia, the median income for four-person families in every southeastern state fell below the national value in 1979, 1985 and 1986. The value for Georgia rose from $21,578 in 1979, to $34,602 in 1986, giving it an annual average rate of growth of 7 percent, somewhat ahead of the national rate of 6.5 percent. For 1985-1986, Georgia's 8.4 percent growth was the highest in the Southeast and well above the U.S. rate of 5.9 percent.

In both 1979 and 1986, Georgia's median four-person family income ranked second among the twelve southeastern states, followed by Florida — a reversal of the usual positions of those two states. Georgia ranked fourth in annual average rate of growth over 1979-1986, but first for 1985-1985 alone (Table 5); Florida ranked third in each instance. The rankings were somewhat more stable than those for state PCMI, although Louisiana dropped from fourth to seventh place between 1979 and 1986. Arkansas and Mississippi ranked eleventh and twelfth in1979, with Mississippi and West Virginia in the last two places in 1986.

WHICH MEASURE?

The choice of data for investigating state and local area income, as this two-part article illustrates, involves content, level of detail, and frequency of publication. Although they are available less frequently, the Bureau of the Census' per capita money income estimates extend to the place level; the decennial estimates offer family and household detail not prepared by any other agency. Once issued in final form, the Census data normally are not substantially revised. The Bureau of Economic Analysis' estimates of per capita money income, with their supporting data on sources of personal income, offer information on the composition of income unrivaled by other approaches, but stop at the county level. No household or family data are included. The BEA's estimates routinely are revised each year (with an eighteen-month lag between the end of the calendar year involved and the publication of estimates), with more extensive revisons every five years. Census' estimates of median income for four-person families, issued for states, are much more restricted, but still give some sense of how relative incomes are changing over time. Each measure has its strengths and limits; the final choice will depend on the purposes of each investigation.

Tables 2 through 5 are continued on pages l6 through19

Health Care Industry
Continued from page 4

of elderly and many fewer nursing home beds per older population. It encourages less intensive living arrangements, such as group homes, in an effort to keep Medicaid costs down.

Table 3 displays the nursing home employment data for selected occupations. Specialized health care providers were employed in small numbers and only by the facilities offering the most highly skilled care. Professionals often were employed by contract, or part-time, to provide the more specialized services (e.g., dietitians, physical therapists).

Nurses dominate the ranks of nursing home employees; and the primary care giver is the nursing home aide. Aides often have little or no training prior to securing employment. Turnover is high (over one-third during the previous twelve months) and this undoubtedly affects management costs and patient care. Nevertheless, since this position does not require a skilled employee, aides could be hired in an average of 10 days and the overall vacancy rate was about 4 percent.

Nursing homes, offering lower pay scales and intense geriatric nursing, are disadvantaged in attracting registered nurses; therefore, LPNs are in high demand here, despite a lowering of demand in hospitals. The LPN vacancy rate was 5.5 percent; yet attrition was about 25 percent. Four weeks was average to hire an LPN. The RN vacancy rate was approximately 8 percent and the vacancies reportedly were very difficult to fill. Although one nursing home reported needing two years to hire an RN, the average hiring time was about two months.

According to Georgia's nursing home administrators, several factors affect nursing home care. At the heart of the problem is the changing nursing home clientele. Shortened hospital stays, early discharges of sicker patients, and technological advancements have sent a sicker patient, requiring higher levels of care, to the nursing home. Many nursing homes are unprepared financially and professionally to provide advanced levels of care and the number of specialized beds in the state are limited; consequently, a patient needing specialized care may have difficulty securing a nursing home placement. The number of high need patients is growing, however, and more general nursing homes are called upon to provide higher levels of nursing care as opposed to strictly custodial care. Higher levels of

Table 3

Nursing Home Personnel
Selected Occupations
N=163

Occupational Category	Current Personnel			Budgeted Vacancies			Totals
	F/T	P/T	FTE	F/T	P/T	FTE	FTE
RN	519	229	625.3	45	18	53.7	679.0
LPN	1,573	445	1,796.8	86	42	103.6	1,900.4
Nursing Aide	5,499	1,052	6,033.1	194	92	240.1	6,273.2
Occupational Therapist	26	18	33.8	2	3	3.5	37.3
Occupational Therapy Assistant	23	3	24.5	1	0	1.0	25.5
Physical Therapist	31	69	62.0	3	5	5.5	67.5
Physical Therapist Assistant	111	19	120.0	6	1	6.5	126.5
Pharmacist	24	58	48.5	0	1	.5	49.0
Dietitian	38	68	68.0	2	2	3.0	71.0
Speech Pathologist	26	27	35.5	3	1	3.5	39.0
Medical Record Administrator	9	19	16.2	0	1	.5	16.7
Medical Record Technician	40	37	56.7	1	3	1.9	58.6

care demand better educated health personnel, higher pay scales, and increased nursing home costs; all problems in an era of costs constraints and personnel shortages.

HOME HEALTH CARE

Home health care services developed during the 1970s as an alternative to expensive hospitalization and extended nursing home confinement. Between 1970 and 1984, the number of home health agencies in Georgia grew from 57 to 70 and several hospitals also entered this market to provide services in their geographic areas. The majority of agencies are private, non-profit, and may overlap in the counties served. In Georgia, agencies receiving federal and state funds must be licensed and must meet prescribed staffing guidelines. Home health care agencies must be differentiated from nursing agencies which may also provide home care; however, nursing services are not required in order for a home health care facility to be licensed. Nurses practice under a separate contract in which financial arrangements for nursing care or sitter service is made directly between the client and health care provider.

Home health care agencies provide a full range of care from specialized nursing, physical and occupational therapy, to housekeeping help. As the employment figures in Table 4 show, registered nurses and home health aides provide the bulk of care. According to the administrators, reimbursement requirements and the need for independent assessments in the home requires the highest skilled employees; therefore, licensed practical nurses and many of the assistants cannot be used effectively in this setting. With the exception of aides, vacancies are low in the less skilled categories.

Again, physical therapists and registered nurses posed the most difficult recruitment problems, with 19.4 percent and 9 percent vacancy rates, respectively. It must be remembered, however, that these numbers represent only 27 of the 73 agencies in Georgia at the time of the survey. The administrators projected growing case loads due to several factors: DRGs, shortened hospital stays, an older population, and the cost and convenience of staying at home for health care as opposed to being hospitalized. When asked to project the number of home health care visits in 1995 as compared to 1986, the forecasted increase was dramatic. Twenty-three agencies reported approximately 680,000 visits in the previous year and projected over 1.2 million in 1995. According to the State Health Planning Agency, 70 agencies served 55,969 patients (80 percent over age 65) and made a total of 1.7 million visits in 1986. Home health care is a growth industry in Georgia and the nation.

Table 4

Home Health Agencies Personnel
Selected Occupations
N=27

Occupational Category	Current Personnel F/T	Current Personnel P/T	Current Personnel FTE	Budgeted Vacancies F/T	Budgeted Vacancies P/T	Budgeted Vacancies FTE	Totals FTE
RN	303	216	362.6	29	14	35.8	398.4
LPN	52	21	66.9	3	4	3.9	70.8
Home Health Aide	297	127	351.5	25	25	31.5	383.0
Occupational Therapist	6	20	11.8	1	4	2.7	14.5
Physical Therapist	26	84	50.2	10	4	12.1	62.3
Speech Pathologist	5	31	15.5	1	1	1.4	16.9
Medical Record Administrator	1	0	1.0	0	0	.0	1.0
Medical Record Technician	3	0	3.0	0	0	.0	3.0

FREESTANDING AMBULATORY SURGICAL CENTERS

Although outpatient services and surgery offered by hospitals in Georgia is growing, the number of licensed freestanding ambulatory surgical centers remains small. Of the 23 centers, 15 replied to the survey. Outpatient centers such as Med-First are not licensed and the total number in Georgia is uncertain; therefore, this health care delivery system was not surveyed for employment trends. While not shown in tabular form, many of the allied health occupations traditionally found in hospitals were represented in the freestanding ambulatory centers although in smaller numbers. For example, there were 6.1 FTE positions for nurse practitioners and 2 FTE vacancies. Several of the smaller professions had a single vacancy. Again, registered nurses formed the largest employment category: 197 fulltime and 95 part-time personnel. There were fourteen fulltime and eight part-time RN vacancies (approximately 7 percent). It is noteworthy that facilities which do not staff around the clock generally have fewer recruitment and retention problems.

Given this discussion, what may we expect in the future? In the second part of this article, we will look at growth projections in the health care industry and examine some trends that affect this vital sector.

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Table 5

Freestanding Ambulatory Surgical Centers Personnel
Selected Occupations
N=15

Occupational Category	Current Personnel			Budgeted Vacancies			Totals
	F/T	P/T	FTE	F/T	P/T	FTE	FTE
RN	197	95	241.6	14	8	17.0	258.6
LPN	38	22	49.3	1	0	1.0	50.3
Medical Technologist	18	8	22.3	2	0	2.0	24.3
Medical Laboratory Technician	2	8	5.0	0	0	.0	5.0
Radiographer	23	5	26.5	2	0	2.0	28.5
Surgical Technologist	12	9	14.3	1	1	1.5	15.8
Physician's Assistant	4	1	4.5	0	1	.5	5.0
Respiratory Therapist	3	0	3.0	1	0	1.0	4.0
Respiratory Therapy Technician	4	0	4.0	1	0	1.0	5.0
Pharmacist	4	0	4.0	1	0	1.0	5.0
Nuclear Medicine Technologist	2	0	2.0	0	0	.0	2.0
Medical Record Administrator	2	1	2.2	0	0	.0	2.2
Medical Record Technician	4	4	5.9	0	0	.0	5.9

Aspects of Income
Continued from page 12

Table 2

County Per Capita Money Income, 1979 and 1985, with Rankings and Annual Average Rates of Growth, 1979-1985
(Amounts in dollars; rates in percent)

County	PCMI 1979	PCMI 1985	Ann. Avg. % Change 1979-85	Rankings of: PCMI 1979	Rankings of: PCMI 1985
Appling	4,544	7,323	8.3	121	107
Atkinson	3,844	5,931	7.5	156	155
Bacon	4,538	6,758	6.9	122	132
Baker	4,431	6,483	6.5	132	142
Baldwin	5,583	8,536	7.3	40	45
Banks	5,497	8,385	7.3	46	54
Barrow	5,554	8,478	7.3	43	50
Bartow	5,702	8,740	7.4	32	35
Ben Hill	5,083	7,555	6.8	83	94
Berrien	5,113	7,849	7.4	78	82
Bibb	6,137	9,666	7.9	23	21
Bleckley	5,520	8,772	8.0	45	33
Brantley	4,505	6,578	6.5	125	140
Brooks	4,135	6,268	7.2	146	152
Bryan	4,883	7,550	7.5	97	95
Bulloch	4,982	7,746	7.6	91	86
Burke	4,493	7,074	7.9	128	115
Butts	5,363	8,018	6.9	62	70
Calhoun	4,072	6,386	7.8	152	149
Camden	5,404	7,902	6.5	55	78
Candler	4,713	6,905	6.6	109	126
Carroll	5,460	8,449	7.5	49	51
Catoosa	5,919	8,758	6.7	26	34
Charlton	4,504	7,029	7.7	126	118
Chatham	6,385	9,992	7.7	17	17
Chattahoochee	4,817	7,503	7.7	102	100
Chattooga	5,054	7,509	6.8	86	99
Cherokee	6,341	10,372	8.5	18	12
Clarke	6,192	9,655	7.7	22	22
Clay	4,084	6,378	7.7	149	150
Clayton	7,308	11,200	7.4	6	8
Clinch	4,402	6,625	7.1	136	135
Cobb	8,580	14,274	8.9	2	1
Coffee	4,615	7,024	7.3	117	119
Colquitt	5,088	7,919	7.7	81	77
Columbia	6,739	11,462	9.3	10	6
Cook	4,735	7,082	6.9	108	114
Coweta	6,324	9,808	7.6	19	19
Crawford	4,807	7,955	8.8	105	74
Crisp	5,217	7,884	7.1	74	80
Dade	5,003	7,130	6.1	89	112
Dawson	5,084	8,572	9.1	82	44
Decatur	4,869	7,353	7.1	99	106
DeKalb	8,443	13,568	8.2	3	3
Dodge	4,616	7,010	7.2	116	120
Dooly	4,050	6,433	8.0	153	146
Dougherty	5,988	9,153	7.3	25	28
Douglas	6,520	10,131	7.6	15	16
Early	4,684	6,906	6.7	111	125
Echols	4,273	6,602	7.5	142	138
Effingham	5,425	8,689	8.2	51	37
Elbert	5,023	7,456	6.8	88	101
Emanuel	4,755	7,040	6.8	107	117
Evans	4,664	7,617	8.5	114	90
Fannin	4,670	7,224	7.5	112	108
Fayette	8,782	14,128	8.2	1	2
Floyd	6,218	9,476	7.3	20	24
Forsyth	6,656	10,999	8.7	13	9
Franklin	4,963	7,667	7.5	92	89
Fulton	7,611	12,329	8.4	5	5
Gilmer	4,932	7,789	7.9	93	84
Glascock	5,390	8,232	7.3	57	59
Glynn	6,840	10,565	7.5	9	11
Gordon	5,571	8,660	7.6	42	39
Grady	4,418	6,877	7.7	134	127
Greene	4,308	6,441	6.9	140	145
Gwinnett	8,168	13,335	8.5	4	4
Habersham	5,371	8,333	7.6	61	55
Hall	6,469	10,196	7.9	16	15
Hancock	3,776	5,784	7.4	157	157
Haralson	5,426	7,984	6.6	50	71
Harris	6,206	9,711	7.7	21	20
Hart	5,056	8,076	8.1	85	67
Heard	5,223	8,041	7.5	73	69
Henry	6,857	10,907	8.0	8	10
Houston	6,703	10,343	7.5	12	13
Irwin	4,814	7,435	7.5	103	102
Jackson	5,401	8,389	7.6	56	53
Jasper	5,277	8,502	8.3	68	49
Jeff Davis	5,092	7,971	7.8	80	73

(continued)

Table 2 (Continued)

County	PCMI 1979	PCMI 1985	Ann. Avg. % Change 1979-85	Rankings of: PCMI 1979	PCMI 1985	County	PCMI 1979	PCMI 1985	Ann. Avg. % Change 1979-85	Rankings of: PCMI 1979	PCMI 1985
Jefferson	4,183	6,232	6.9	145	154	Richmond	5,873	9,502	8.3	27	23
Jenkins	4,112	6,398	7.6	147	148	Rockdale	7,136	11,303	8.0	7	7
Johnson	4,548	6,773	6.9	120	129	Schley	4,516	7,520	8.9	123	98
Jones	5,833	9,408	8.3	29	25	Screven	4,500	6,922	7.4	127	124
Lamar	5,258	7,937	7.1	71	75	Seminole	4,641	7,098	7.3	115	113
Lanier	4,078	6,477	8.0	151	144	Spalding	5,758	8,718	7.2	30	36
Laurens	5,337	8,268	7.6	64	57	Stephens	5,524	8,115	6.6	44	65
Lee	5,856	9,005	7.4	28	30	Stewart	3,517	5,514	7.8	158	158
Liberty	4,910	7,368	7.0	94	105	Sumter	5,001	7,578	7.2	90	92
Lincoln	5,352	7,977	6.9	63	72	Talbot	4,784	7,548	7.9	106	96
Long	4,513	6,766	7.0	124	130	Taliaferro	4,083	6,409	7.8	150	147
Lowndes	5,609	8,588	7.4	39	43	Tattnall	4,110	6,568	8.1	148	141
Lumpkin	5,384	8,592	8.1	60	42	Taylor	5,290	8,213	7.6	67	61
Macon	4,306	6,483	7.1	141	143	Telfair	4,398	6,764	7.4	137	131
Madison	5,266	7,812	6.8	69	83	Terrell	4,314	6,604	7.4	139	137
Marion	3,933	6,261	8.1	154	153	Thomas	5,168	7,752	7.0	76	85
McDuffie	5,166	7,679	6.8	77	88	Tift	5,259	8,087	7.4	70	66
McIntosh	4,260	6,704	7.9	143	133	Toombs	4,808	7,741	8.3	104	87
Meriwether	4,907	7,200	6.6	95	110	Towns	5,106	8,200	8.2	79	63
Miller	4,557	7,224	8.0	119	109	Treutlen	4,840	7,592	7.8	101	91
Mitchell	4,612	6,667	6.3	118	134	Troup	5,707	8,651	7.2	31	41
Monroe	5,388	8,511	7.9	58	47	Turner	4,696	6,939	6.7	110	123
Montgomery	4,381	6,979	8.1	138	121	Twiggs	4,459	7,197	8.3	131	111
Morgan	4,886	7,533	7.5	96	97	Union	4,408	7,063	8.2	135	116
Murray	5,580	8,239	6.7	41	58	Upson	5,615	8,327	6.8	38	56
Muscogee	6,044	9,176	7.2	24	27	Walker	5,671	8,528	7.0	33	46
Newton	5,659	8,924	7.9	34	31	Walton	5,412	8,671	8.2	54	38
Oconee	6,708	10,274	7.4	11	14	Ware	5,388	8,175	7.2	59	64
Oglethorpe	5,046	7,885	7.7	87	79	Warren	4,257	6,622	7.6	144	136
Paulding	5,650	9,059	8.2	36	29	Washington	4,863	7,412	7.3	100	103
Peach	5,337	8,507	8.1	65	48	Wayne	5,423	8,202	7.1	52	62
Pickens	5,474	8,774	8.2	47	32	Webster	4,492	6,942	7.5	129	122
Pierce	4,485	6,875	7.4	130	128	Wheeler	3,854	5,806	7.1	155	156
Pike	5,629	9,184	8.5	37	26	White	5,652	8,652	7.4	35	40
Polk	5,327	8,069	7.2	66	68	Whitfield	6,579	9,957	7.2	14	18
Pulaski	5,063	7,922	7.7	84	76	Wilcox	4,420	6,590	6.9	133	139
Putnam	5,421	8,445	7.7	53	52	Wilkes	5,247	7,569	6.3	72	93
Quitman	3,436	5,431	7.9	159	159	Wilkinson	5,206	7,877	7.1	75	81
Rabun	5,469	8,227	7.0	48	60	Worth	4,881	7,388	7.2	98	104
Randolph	4,669	6,292	5.1	113	151	**Georgia**	6,380	10,191	8.1	--	--

Source: Based on U.S. Department of Commerce, Bureau of the Census, South: 1986 Population and 1985 Per Capita Income Estimates for Counties and Incorporated Places (Current Population Reports, Local Population Estimates, Series P-26, No. 86-S-SC). Ranks and rates computed by Division of Research.

Table 3

Ten Highest and Lowest County Per Capita Money Incomes, 1979, 1985, and by Annual Average Rate of Growth, 1979-85

Rank	County	1979 PCMI ($)	1985 Rank	County	1985 PCMI ($)	Ann. Avg. % Change 1979-85 Rank	County	Annual Avg. % Change 1979-85
Highest								
1	Fayette	8,782	1	Cobb	14,274	1	Columbia	9.3
2	Cobb	8,580	2	Fayette	14,128	2	Dawson	9.1
3	DeKalb	8,443	3	DeKalb	13,568	3	Schley	8.9
4	Gwinnett	8,168	4	Gwinnett	13,335	4	Cobb	8.9
5	Fulton	7,611	5	Fulton	12,329	5	Crawford	8.8
6	Clayton	7,308	6	Columbia	11,462	6	Forsyth	8.7
7	Rockdale	7,136	7	Rockdale	11,303	7	Cherokee	8.5
8	Henry	6,857	8	Clayton	11,200	8	Evans	8.5
9	Glynn	6,840	9	Forsyth	10,999	9	Gwinnett	8.5
10	Columbia	6,739	10	Henry	10,907	10	Pike	8.5
Lowest								
150	Taliaferro	4,083	150	Clay	6,378	150	Stephens	6.6
151	Lanier	4,078	151	Randolph	6,292	151	Meriwether	6.6
152	Calhoun	4,072	152	Brooks	6,268	152	Candler	6.6
153	Dooly	4,050	153	Marion	6,261	153	Baker	6.5
154	Marion	3,933	154	Jefferson	6,232	154	Camden	6.5
155	Wheeler	3,854	155	Atkinson	5,931	155	Brantley	6.5
156	Atkinson	3,844	156	Wheeler	5,806	156	Mitchell	6.3
157	Hancock	3,776	157	Hancock	5,784	157	Wilkes	6.3
158	Stewart	3,517	158	Stewart	5,514	158	Dade	6.1
159	Quitman	3,436	159	Quitman	5,431	159	Randolph	5.1
—	Georgia	6,380	—	Georgia	10,191	—	Georgia	8.1

Source: Based on U.S. Department of Commerce, Bureau of the Census, South: 1986 Population and 1985 Per Capita Income Estimates for Counties and Incorporated Places (Current Population Reports, Local Population Estimates, Series P-26, No. 86-S-SC). Ranks and rates computed by Division of Research.

Table 4

Median Income for 4-Person Families, U.S. and Southeastern States, Selected Years, With Annual Average Rates of Growth for 1979-86 and Percentage Change, 1985-86

(In current dollars; change in percent)

Area	1979	1985	1986	Annual Average % Change 1979-86	% Change 1985-86
United States	22,395	32,777	34,716	6.5	5.9
Alabama	18,613	28,407	29,799	7.0	4.9
Arkansas	18,493	26,255	27,157	5.6	3.4
Florida	20,757	31,364	33,368	7.0	6.4
Georgia	21,578	31,907	34,602	7.0	8.4
Kentucky	19,138	27,307	28,464	5.8	4.2
Louisiana	20,166	29,910	29,614	5.6	-1.0
Mississippi	17,672	25,716	26,763	6.1	4.1
North Carolina	19,648	30,290	31,787	7.1	4.9
South Carolina	20,154	29,417	31,025	6.4	5.5
Tennessee	19,437	27,917	29,568	6.2	5.9
Virginia	22,976	35,353	37,885	7.4	7.2
West Virginia	18,876	26,170	27,094	5.3	3.5

Source: Based on U.S. Department of Commerce, Bureau of the Census, "Median Income for 4-Person Families by State," mimeo press release, (January, 1988). Rates computed by Division of Research.

Table 5

Rankings of Median 4-Person Family Income and Rates of Growth, Selected Years and Periods, for Southeastern States

Area	1979 Family Income Rank	1986 Family Income Rank	Annual Avg. % Change 1979-86 Rank	% Change 1985-86 Rank
Alabama	10	6	5	7
Arkansas	11	10	11	11
Florida	3	3	3	3
Georgia	2	2	4	1
Kentucky	8	9	9	8
Louisiana	4	7	10	12
Mississippi	12	12	8	9
North Carolina	6	4	2	6
South Carolina	5	5	6	5
Tennessee	7	8	7	4
Virginia	1	1	1	2
West Virginia	9	11	12	10

Source: Based on U.S. Department of Commerce, Bureau of the Census, "Median Income for 4Person Families by State," mimeo press release, January, 1988 (See Table 4). Rankings determined by Division of Research.

GEORGIA BUSINESS STATISTICS

SERIES	JUNE 1988	MAY 1988	APR 1988	JUNE 1987
Georgia Leading Indicators Index[1] (1969=100)	180.15	181.70	180.18	176.47
Georgia Coincident Indicators Index[2] (1969=100)	559.95	561.79	562.45	556.52
Nonagricultural Employment[2] (thousands)	2,801.7	2,792.8	2,787.9	2,779.8
Manufacturing Employment[2] (thousands)	570.5	569.8	569.6	571.7
Average Weekly Earnings, Manufacturing[2] (dollars)	358.98	355.52	357.25	357.86
Help Wanted Advertising, Atlanta Index[3] (1967=100)	271	289	287	277
Taxable Retail Sales[4] ($ millions)	3,929.0	4,102.4	3,208.9	3,680.4
Building Permits[5]				
Residential Housing Units, Private (thousands)	6.5	5.7	5.8	7.0
Value of Residential Housing ($ thousands)	373,171	346,810	350,989	355,824
Value of Nonresidential Construction ($ thousands)	218,533	188,282	261,275	220,179[p]
Industrial Buildings	20,937	16,502	9,829	12,928
Office, Bank and Other Professional Buildings	26,297	23,966	92,284	20,123
Stores and Other Mercantile Buildings	74,793	61,007	70,330	49,593
Other	96,506	86,807	88,832	137,535
Consumer Price Index[6] (CPI-U, all items)				
South U.S. (1982-84 = 100)	116.1	115.6	115.4	112.2
South/Population more than 1,200,000[a]	117.2	116.7	116.0	113.1
South/Population 450,000 - 1,200,000[a]	116.7	116.2	116.3	112.5
South/Population 50,000 - 450,000[a]	114.9	114.6	114.5	111.7
South/Population Less than 50,000[a]	114.5	113.7	113.6	110.3
Atlanta (1982-84=100)[b]	119.1[b]	–	–	115.5[b]
Prices Received by Farmers, Georgia Index[7] (1977=100)	130[r]	129[r]	120[r]	126
	1988:I	**1987:IV**	**1987:III**	**1987:I**
Total Personal Income[8] ($ millions)	91,628	91,074	88,530	85,307

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[1] Georgia Economic Forecasting Project, Division of Research, College of Business Administration, University of Georgia. Initial monthly values subject to revision

[2] Labor Information Systems, Georgia Department of Labor

[3] Series published by The Conference Board, Inc

[4] Derived by the Division of Research, College of Business Administration, University of Georgia, from data of the Sales and Use Tax System, Georgia Department of Revenue

[5] U.S. Department of Commerce, Bureau of the Census

[6] U.S. Department of Labor, Bureau of Labor Statistics, Southeastern Regional Office

[7] Georgia Department of Agriculture, Georgia Crop Reporting Service

[8] U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System

[a] Group size revised as of January 1, 1987, indexes revised to 1982-84=100 base as of January, 1988

[b] Atlanta index is average of each 6 months of the calendar year; base revised to 1982-84=100 as of January 1, 1988

[c] Data are for 1st half, 1988, and first half, 1987, respectively

[p] Preliminary; more than 25% imputed

[r] Revised

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